JOURNAL
OF THE
Association *of* American Medical Colleges

Volume 21 JULY, 1946 Number 4

Final Report of the Committee on the Teaching of Tropical Medicine of the Association of American Medical Colleges

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The Committee on the Teaching of Tropical Medicine was appointed by the Association of American Medical Colleges at its annual meeting in October, 1941. At that time it was realized that the United States would probably have to fight a war in the tropics, and that the physicians who would be called into military service would be very inadequately prepared for dealing with many of the diseases they would encounter. The Committee was instructed to determine the status of teaching of tropical medicine in the medical schools of the United States and Canada, and to make recommendations to meet the emergency.

PROGRAM OF THE COMMITTEE

Four previous reports of the Committee have been published in the JOURNAL OF THE ASSOCIATION OF AMERICAN MEDICAL COLLEGES.[1] These reports have described the situation as it existed in 1941, the program which was developed, and the extent to which it was participated in by the medical schools through the year 1944. In brief summary, the investigations of the Committee and the program which was developed was as follows: A questionnaire sent to the medical schools in December, 1941, revealed that the teaching of parasitology and tropical medicine was very inadequate in most of the schools, and that comparatively few instructors were qualified to teach these subjects. Recommendations were made for adequate instruction. Mr. Archie S. Woods, Executive Director of The John and Mary R. Markle Foundation became interested in the problem, and offered to support a program for the intensive instruction of medical school teachers in these subjects. Arrangements were made for two instructors from each medical school to attend the eight weeks' course in tropical medicine

at the Army Medical School, and Tulane University of Louisiana offered to inaugurate a similar course. The Markle Foundation made an initial appropriation of $25,000 to cover travel, living expenses and tuition, and subsequently supplemented this to a total of $44,228.17. The first courses in these institutions attended by medical school teachers began in January, 1943. Tulane gave three consecutive courses, and the Army Medical School continued to receive medical school instructors in each of its sixteen consecutive courses through the summer of 1945.

The need for teaching material in tropical and parasitic diseases was acute, and the Army Medical School, at the request of the Committee, established a Distributing Center for teaching material in January, 1943. This was aided by a grant of $1,000 from the Markle Foundation.

These activities, together with the realization of the emergency, led to the establishment of intensive instruction in tropical and parasitic diseases in many of the medical schools, particularly for students about to enter military service. It also led to assignment of more adequate time to similar instruction in the earlier part of the curriculum.

In February, 1943, Mr. Woods offered to obtain an appropriation to support a program for medical school instructors to obtain practical experience in tropical medicine in Central America. The United Fruit Company offered the use of its hospitals and the Office of Inter-American Affairs offered the cooperation of its field parties and connections in Central America. An inspection trip was made to Central America to evaluate teaching facilities. Each medical school was offered the opportunity to send two instructors for one month of practical experience. The Markle Foundation made an appropriation of $35,000 for this program, and subsequently made other appropriations to a total of $70,771.83. The first group of instructors went to Central America in June, 1943, and the program continued through September, 1945. At first the United Fruit Company hospitals were depended on primarily for clinical experience, but later this activity was assumed in great part by the San Juan de Dios Hospital at San Jose, Costa Rica, where exceptional clinical material was available under the directorship of Dr. Antonio Pena Chavarria. The field parties of the Office of Inter-American Affairs provided experience in public health activities and field observations of certain diseases. A number of the Fellows returned by way of Mexico City, where they visited the Institute of Hygiene and Tropical Diseases and other institutions.

After the immediate needs of the medical schools were met by offering opportunity for two instructors to obtain fellowships, additional requests were received from some schools. These were met so far as possible and ultimately some schools were represented by as many as four instructors.

Table 1 shows the number of fellowships awarded for intramural courses and practical experience in Central America, and the number of different instructors who were awarded fellowships. A total of 212 fellowships were awarded, of which 110 were for intramural courses and 102 were for Central

America. Fellowships were awarded to 140 individuals, 38 of whom attended an intramural course only, 30 of whom went to Central America only, and 72 of whom both attended an intramural course and went to Central America. In Appendix A will be found the name and title of each instructor who was awarded a fellowship, and the types of fellowship awarded.

Great appreciation was expressed almost uniformly with the experience received both in the intramural courses and in Central America. The value received depended largely upon the attitude and initiative of the individual. It was recognized by the Committee that the value of one month in Central America lay as much in seeing the setting in which tropical diseases occur as in seeing the diseases themselves. Each recipient of a fellowship to Central America made a written report of his experience to the Chairman of the Committee and to the Markle Foundation. Five of these have been published in

TABLE 1.—TROPICAL MEDICINE FELLOWSHIPS AWARDED TO MEDICAL SCHOOL INSTRUCTORS.

I. Fellowships Awarded			**212**
Intramural Fellowships		110	
Army Medical School	71		
Tulane University	39		
Central American Fellowships		102	
With Intramural Fellowship	72		
Without Intramural Fellowship	30		
II. Instructors Awarded Fellowships			**140**
Intramural Course Only		38	
Army Medical School	22		
Tulane University	16		
Central America Only		30	
Intramural Courses and Central America		72	
Army Medical School and Central America	49		
Tulane University and Central America	23		

the JOURNAL OF THE ASSOCIATION OF AMERICAN MEDICAL COLLEGES.[2] In addition, a number of scientific and popular articles have appeared based on the observations made during these fellowship periods. Unquestionably, this program stimulated great interest in tropical medicine on the part of the participants, and is reflected in the numerous requests which the Committee has received for opportunities to obtain further experience in the tropics. It undoubtedly led to much better preparation of medical students to perform effective service in the armed forces.

The Distributing Center for Teaching Specimens at the Army Medical School under the directorship of Major George W. Hunter, III, SnC., AUS, was a very important factor in the success of the teaching program. It furnished free of charge, except for returnable glassware, cultures and preserved specimens of intestinal protozoa, blood smears of malaria parasites, adults, larvae and eggs of helminths, eggs, larvae, pupae, and adults of arthropods, and miscellaneous material including histopathological sections, whole mounts, stained smears from cultures and other items. In the three year period from 1943 through 1945, 88,621 specimens, or material for the preparation of such specimens, were distributed to medical schools. In addition, 81,411 specimens were

distributed to military, public health and other agencies, making a total of more than 170,000 specimens provided by the Center. The cooperation of the medical schools, Army laboratories, the United States Public Health Service, and numerous other agencies in supplying specimens to the Distributing Center was essential to its success. The number of specimens distributed has increased each year. The Center is still in active operation, and will probably remain so indefinitely. Its scope is being broadened to include such teaching material as motion picture films on tropical diseases. It is expected that professional training films produced by the Photographic Service of the Army Signal Corps will be made available for this purpose.

RELATED ACTIVITIES BY OTHER AGENCIES

In the previous reports of the Committee mention was made of the cooperation of the National Research Council, the Office of the Surgeon General of the Army and the Army Medical Museum in contributing to the improvement of the teaching of tropical medicine in the medical schools. These activities may now be completely summarized as follows: The Markle Foundation made a grant to the National Research Council in 1942 to provide for traveling lecturers to speak on tropical diseases, particularly to senior medical students and interns. A majority of the medical schools took advantage of this opportunity, some of them being visited by several lecturers. Another grant was made by the Markle Foundation to the National Research Council for the preparation and distribution to medical schools of maps showing the world distribution of important tropical diseases, and for the publication of information obtained by the Office of the Surgeon General of the Army on diseases and medical facilities in all the countries of the world. This material was the basis of a book, "Global Epidemiology: A Geography of Diseases and Sanitation" under the authorship of Simmons, Whayne, Anderson and Horack; Lippincott, 1944. Two hundred copies were distributed to medical school libraries and instructors.

In 1943, the Markle Foundation made a grant to the Army Medical Museum, through the American Foundation for Tropical Medicine, for the establishment of a Distributing Center for teaching material on the pathology of tropical diseases. In 1944, a similar grant was made for the preparation of sets of 109 colored lantern slides on the pathology of tropical diseases for loan to medical schools. The Army Medical Museum also prepared an Atlas on the Pathology of Tropical Diseases. This was published under the authorship of Ash and Spitz in 1945. It is undoubtedly the finest work on this subject ever published.

The Army Medical School prepared a Manual of Tropical Medicine which was published in 1945 under the authorship of Mackie, Hunter and Worth, and under the sponsorship of the National Research Council.

Following the recommendation of the Committee on War and Postwar Tropical Medicine of the American Society of Tropical Medicine at the annual meeting of the Society in November, 1944, the United States Public Health

Service, in 1945, established in the Office of Malaria Control in War Areas at Atlanta, Georgia, a Diagnostic and Training Laboratory and a Tropical Disease Information Service. The Laboratory is giving courses in parasitic and tropical medicine to public health laboratory technicians and the Information Service is preparing lantern slides, film strips and motion pictures for local use and loan to teaching institutions.

The American Foundation for Tropical Medicine has made grants to several medical schools for the payment of salaries of instructors and technicians in tropical medicine and for the support of research projects. It has also supported the establishment at Duke University of a Registry and Distributing Center for teaching material on fungous diseases. The Markle Foundation made a grant through the Pan-American Sanitary Bureau to Duke University in 1944 for the collection and study of fungous disease material in the tropics.

PRESENT STATUS OF THE TEACHING OF TROPICAL MEDICINE AND PARASITOLOGY AND PROSPECTS FOR THE FUTURE

In August, 1945, the Committee sent a questionnaire to the medical schools inquiring as to the number of hours and number of instructors assigned to parasitology and tropical medicine previous to the war and at the present time; also as to whether the school expected to continue its teaching at the present level after the war, whether additional permanent teaching personnel was desired, and whether outside financial support would be necessary for such personnel. A list of the instructors in these fields was also requested. Replies were received from all of the medical schools in the United States and Canada. Table 2 shows the average increase in instruction hours in parasitology in the 81 schools from which detailed information was received. Two of these schools stated that they still do not have any hours assigned to parasitology, but one of these two probably devotes considerable time to the subject in some other course. It will be seen from this table that there has been on the average a great increase in the number of teaching hours in schools which previously had given little or no such instruction, and that there has been an increase at some schools which previously provided 30 hours or more of instruction. Appendix B gives a list of the schools according to the number of teaching hours in parasitology in 1945. Three schools, namely, Tulane, Southern California and Syracuse, at present devote 100 hours

TABLE 2.—AVERAGE INCREASE IN TEACHING HOURS IN PARASITOLOGY.

Previous Hrs. of Instruction	Number of Schools	Average Number of Hours			Spread of Increase	Percentage Increase
		Previous	Present (1945)	Increase		
0	12	0	23	23	0-66	
1-10	10	8.7	53.2	44.5	12-90	511
11-20	15	15.6	43.8	28.2	2-68	180
21-30	13	26.0	54.0	28.0	0-48	107
31-40	8	35.8	47.2	11.4	0-25	31
41-50	8	47.5	51.0	3.5	0-12	7
51-60	7	57.8	61.0	3.2	0-15	5
61-70	3	64.6	70.0	5.4	0-16	7
71-80	4	74.0	88.5	14.5	0-42	19
112	1	112.0	112.0	0		

or more to this subject. Thirty-nine schools devote 60 or more hours, and only 11 devote less than 30 hours, which is considered the minimum necessary for an elementary presentation of the subject. This is in marked contrast to the situation at the beginning of the war when 12 schools devoted no time to parasitology, and 34 schools devoted less than 30 hours to it.

The replies to the questionnaire indicate that the total number of instructors in parasitology in the 81 medical schools which furnished detailed information had increased from 155 prior to the war to 206 in 1945. Whereas 12 schools stated that they had had no instructors in this subject prior to the war, only 2 remained in this group in 1945. There was an average increase in the number of instructors in schools which had previously given 40 hours or less of instruction but there was a decrease in the average number of instructors in schools which had previously given more than 40 hours. The latter fact is undoubtedly due to the entry of some well qualified instructors into the armed forces.

The improvement in the teaching of tropical medicine will be summarized only in connection with the four year schools. Table 3 shows the average increase in teaching hours in tropical medicine in the 60 schools which furnished

TABLE 3.—AVERAGE INCREASE IN TEACHING HOURS IN TROPICAL MEDICINE.

Previous Hrs. of Instruction	Number of Schools	Average Number of Hours			Spread of Increase	Percentage Increase
		Previous	Present (1945)	Increase		
0	36	0	21.5	21.5	0-100	
1-10	17	6.9	19.5	12.6	0-40	182
11-20	4	15.2	43.0	28.2	0-60	181
21-30	1	30.0	30.0			
45	1	45.0	45.0			
65	1	65.0	65.0			

detailed information. Among the 36 which stated they had previously given no instruction in tropical medicine, 4 still gave no instruction in 1945, but the average number of hours in this group increased to 21, and one school gave 100 hours of instruction. Among the schools which had previously given up to 20 hours of instruction there was a considerable average increase. Only 3 schools stated that they had previously devoted more than 20 hours to tropical medicine and they showed no increase. Appendix C lists the four year schools in the order of the number of hours devoted to the subject in 1945. Yale and the University of Alberta led the list with 100 and 80 hours, respectively. Eight schools devoted from 40 to 65 hours; 25 devoted from 20 to 36 hours; 22 devoted from 10 to 18 hours; and three devoted less than 10 hours. Fourteen schools either gave no instruction in tropical medicine or did not specify the number of hours. There is little correlation between the number of hours devoted to parasitology (Appendix B) and the number devoted to tropical medicine (Appendix C). The reason for this may be that personnel and facilities determined whether the main emphasis is placed on laboratory or clinical instruction.

The total number of instructors in tropical medicine in the four year schools

increased from 49 before the war to 151 in 1945. The increase was greatest in the schools previously giving the least amount of instruction, and again there was a slight decrease in the number of instructors in schools which had previously devoted the most time to the subject.

In reply to the question as to whether it was expected that the program in tropical medicine and parasitology as conducted in 1945 would be continued in the postwar period, 67 schools replied in the affirmative. This seems to indicate a permanent interest in these subjects on the part of the majority of the schools.

Additional Teaching Personnel.—The need for additional teaching personnel in tropical medicine and parasitology is indicated by the fact that 26 schools stated that they desired a parasitologist, 15 schools desired tropical medicine clinicians, and 13 schools desired other types of personnel including research workers, technicians, and instructors in related subjects. All except four of these schools stated that outside financial assistance would be required to pay the salaries of such additional personnel.

Although the Committee recognizes that a question asking whether additional funds are needed is likely to elicit an affirmative reply from even the most opulent educational institution, the replies reflect the present stringency in medical school budgets, especially when the suggested expenditure is in a field which has been considered a luxury. It is obvious that the gaps in personnel will remain largely unfilled unless some interested agency offers financial assistance wherever it is actually needed and desired until the essential value of the personnel is demonstrated sufficiently for the schools to substitute funds from their own budgets. Assistance could be supplied on a diminishing scale for a few years so that the burden of support could be assumed gradually by the schools. The American Foundation for Tropical Medicine, with headquarters at the Long Island College of Medicine, 350 Henry Street, Brooklyn 2, New York, has responded favorably to almost every request for the support of teaching and laboratory personnel. In the past, its income for such grants has been very limited, but recent developments indicate that it may be of greater assistance in the future.

The number of well trained parasitologists has increased greatly in the past twenty years, but the opportunities in animal parasitology have been so much greater than in human parasitology that few have become associated with medical schools. Clinicians trained in tropical medicine have been much more limited in number. The recent war, however, has provided such an incomparable opportunity for training and experience in these fields that there should be little difficulty in securing qualified teaching and research personnel, if adequate salaries and permanent opportunities are provided. The American Society of Parasitologists,* and the American Society of Tropical Medicine† can be of assistance to medical schools in obtaining qualified personnel.

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† Secretary, Dr. Norman H. Topping, National Institute of Health, Bethesda, Maryland.

Future Opportunities for Study and Research in the Tropics.—No science can flourish or advance without opportunities for new discoveries. One reason why tropical diseases have attracted so little interest in American medicine is that we have had little responsibility in the tropics, and little exchange of ideas with medical scientists from tropical countries. In order to conserve the interest of those who have taught tropical medicine and parasitology during the war, and in order to encourage the best talent to enter these fields, it is essential to provide opportunities for medical school personnel to study and conduct research in the tropics. This can best be accomplished by the establishment of research stations in tropical regions under our influence or control, and by a program of interchange of personnel between our universities and those of tropical countries.

The United States Army has had Medical Research Boards in the Philippines and in the Panama Canal Zone, and can be expected to resume such activities, preferably in conjunction with the Navy, in the near future. The American Foundation for Tropical Medicine has received an offer from an interested person to establish a Tropical Medicine Research Institute in Liberia if the cooperation of certain of our universities can be obtained. Other firms with interests in the tropics should be encouraged to follow this example.

The interchange of faculty members and research workers between universities in this country and universities in the tropics would be of great mutual benefit, both scientifically and politically. In the past, nearly all fellowships have been granted to foreigners to obtain the benefits of study and research in this country; very few have been available to our people to work in the tropics. We believe this deficiency can be overcome if the benefits are convincingly presented to such agencies as the Institute of International Education, the Pan American Sanitary Bureau, the State Department of the Federal Government, and the Foundations interested in medical research. Reciprocal relations between individual universities similar to those already established between Cornell University and the University of Havana should also be encouraged.

In addition to the interchange of workers, fellowships are needed for students and staff members of our medical schools to study and conduct research in the tropics. The Committee has received numerous requests for such opportunities from individuals whose interest was aroused by fellowships granted during the war. There are several tropical medicine research institutes which can be used for this purpose, such as the Institute of Hygiene and Tropical Diseases in Mexico City and its recently opened Field Station near Vera Cruz; the San Juan de Dios Hospital at San José, Costa Rica; the School of Tropical Medicine at San Juan, Puerto Rico; the Gorgas Memorial Laboratory at Panama; and the projected Laboratory in Liberia. Arrangements could doubtless also be made with institutes under British, French and Belgian auspices in Africa, with research stations in South America, with the laboratories of the Army Medical Research Board, and with universities and institutes in China.

The necessity for a continuing interest in medicine in the tropics is evident when we consider the deveolpment of rapid transportation, the outposts in the

tropics which the United States must maintain for the preservation of world peace, the increase in commercial interests in the tropics, and the responsibility of the United Nations to deal with tropical health problems. Thus far, no definite program has been developed for meeting these needs and opportunities. The Association of American Medical Colleges, as the coordinating organization for the medical schools, is the logical agency for promoting a program which will conserve and stimulate the interest of tropical medicine in these schools.

FINANCIAL STATEMENT

Appendix D shows the total receipts from the Markle Foundation for the three separate funds which were established to conduct the program of the Committee, amounting to $116,000, and the total expenditures from these funds, amounting to $114,408.32.

ACKNOWLEDGMENTS

In making its final report, the Committee wishes again to acknowledge its appreciation for the cooperation it has received from many agencies and individuals, notably the Secretary and the Treasurer of the Association; The John and Mary R. Markle Foundation, and particularly the late Archie S. Woods, and Dr. John A. Ferrell; the National Research Council; the Section on Preventive Medicine of the Office of the Surgeon General of the Army under Brigadier General James S. Simmons; the Army Medical School, directed by Brigadier General George R. Callender; its Tropical Section under Colonel Richard P. Strong and Colonel Thomas T. Mackie, and its Distributing Center under Major George W. Hunter III; the Army Medical Museum, directed by Colonel James E. Ash; the Department of Tropical Medicine of Tulane University under Professor Ernest Carroll Faust; the United States Public Health Service under Dr. Thomas Parran, and particularly the National Institute of Health under Dr. R. E. Dyer; the United Fruit Company and its Medical Director, Dr. Edward I. Salisbury, and the Directors of its hospitals in Central America; the Health and Sanitation Division of the Office of Inter-American Affairs and its Field Parties in Mexico and Central America; the Pan-American Sanitary Bureau under Dr. Hugh S. Cumming; the Ministries of Health in Mexico and Guatemala; Dr. Antonio Peña Chavarría, and his colleagues of the San Juan de Dios Hospital, San José, Costa Rica; and the American Foundation for Tropical Medicine under the direction of Dr. Jean A. Curran, Colonel Thomas T. Mackie, and Mr. Lee T. Melly. Space forbids the mention of many other individuals who have contributed largely to the success of the Committee program.

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APPENDIX A.

State Institution	Instructor Title	Type of Fellowship
ARKANSAS		
Univ. of Arkansas	Charles H. Winkler, Ph.D. Instructor in Bacteriology	A.M.S.—C.A.
CALIFORNIA		
Univ. of California	William M. Hammon, M.D. Asst. Prof. of Epidemiology	A.M.S.—C.A.
	Herbert G. Johnstone, Ph.D. Asst. Prof. of Bacteriology	A.M.S.—C.A.
Coll. Med. Evangelists	O. B. Pratt, M.D. Assoc. Prof. of Pathology	C.A.
	Raymond M. Hill, M.D. Instructor in Medicine	A.M.S.—C.A.
	Gilbert D. Curtis, M.D. Instructor in Pathology	T.U.—C.A.
Univ. of S. California	John F. Kessel, Ph.D. Professor of Bacteriology	A.M.S.
Stanford University	Robert S. Evans, M.D. Instructor in Medicine	A.M.S.
COLORADO		
Univ. of Colorado	William C. Black, M.D. Professor of Pathology	A.M.S.—C.A.
	Lloyd J. Florio, M.D. Assoc. Prof. of Pub. Health	T.U.—C.A.
	Edward R. Mugrage, M.D. Professor of Public Health	C.A.
	Elwood E. Baird, M.D. Instructor in Public Health	A.M.S.
CONNECTICUT		
Yale University	Roswell D. Johnson, M.D. Instructor in Pediatrics	A.M.S.—C.A.
	Morris Tager, M.D. Asst. Prof. of Bacteriology	T.U.—C.A.
	Henry Bunting, M.D. Asst. Prof. of Pathology	A.M.S.—C.A.
DISTRICT OF COLUMBIA		
Georgetown University	Donald C. Butts, Sc.D. Instructor in Bacteriology	A.M.S.
	Mario Mollari, M.D. Professor of Bacteriology	C.A.
George Washington Univ.	Angus MacIvor Griffin, Ph.D. Asst. Prof. of Bacteriology	T.U.
	Harry F. Dowling, M.D. Professor of Medicine	C.A.
Howard University		
GEORGIA		
Emory University	Arthur J. Merrill, M.D. Assistant in Medicine	A.M.S.
	William Platt, M.D. Assistant in Pathology	T.U.—C.A.
Univ. of Georgia	Robert Dienst, Ph.D. Assoc. Prof. of Bacteriology	A.M.S.—C.A.
	Fred J. Denton, Ph.D. Asst. Prof. of Bacteriology	T.U.—C.A.
	Everett S. Sanderson, M.D. Professor of Bacteriology	C.A.
ILLINOIS		
Northwestern University	Albert H. Meier, M.D. Instructor in Medicine	T.U.
Univ. of Chicago	Omar John Farred, M.D. Instructor in Medicine	A.M.S.—C.A.
	Mary Louise Ellert, M.D. Instructor in Medicine	A.M.S.—C.A.

State Institution	Instructor Title	Type of Fellowship
Univ. of Illinois	Carroll L. Birch, M.D. Asst. Prof. of Medicine	T.U.—(2) C.A.
Loyola University		
INDIANA		
Univ. of Indiana	William H. Headlee, Ph.D. Asst. Prof. of Parasitology	A.M.S.—C.A.
	Anderson Nettleship, M.D. Assoc. Prof. of Pathology	A.M.S.—C.A.
IOWA		
Univ. of Iowa	James A. Greene, M.D. Assoc. Prof. of Medicine	A.M.S.
	Willis N. Fowler, M.D. Assoc. Prof. of Medicine	C.A.
	Kenneth MacDonald, Ph.D. Associate in Hygiene	A.M.S.—C.A.
KANSAS		
Univ. of Kansas	Harry L. Douglas, M.D. Instructor in Medicine	A.M.S.—C.A.
KENTUCKY		
Univ. of Louisville	James A. Kennedy, Ph.D. Professor of Bacteriology	T.U.
LOUISIANA		
Louisiana State Univ.	Robert C. Lowe, M.D. Asst. Prof. of Medicine	A.M.S.—C.A.
	Edgar Hull, M.D. Professor of Medicine	C.A.
	Marion Hood, Ph.D. Asst. Prof. of Pub. Health	C.A.
Tulane University		
MARYLAND		
Johns Hopkins Univ.		
Univ. of Maryland		
MASSACHUSETTS		
Boston University	Harold Jeghers, M.D. Assoc. Prof. of Medicine	A.M.S.—C.A.
	Charles F. Branch, M.D. Professor of Pathology	C.A.
	David L. Belding, M.D. Professor of Bacteriology	C.A.
	Matthew Derow, M.D. Instructor in Bacteriology	A.M.S.
Harvard University		
Tufts College	William C. McCarty, M.D. Teaching Fellow in Medicine	A.M.S.
	Claire F. Ryder, M.D. Assistant in Medicine	A.M.S.
MICHIGAN		
Univ. of Michigan	Robert A. Hettig, M.D. Instructor in Medicine	A.M.S.—C.A.
	Walter A. Stryker, M.D. Instructor in Pathology	T.U.—C.A.
	John H. Seabury, M.D. Instructor in Medicine	A.M.S.—C.A.
	H. Marvin Pollard, M.D. Asst. Prof. Internal Medicine	A.M.S.
Wayne University	I. Muir Clapper, M.D. Instructor in Medicine	A.M.S.
	Daniel E. Haaley, M.D. Assoc. Prof. of Bacteriology	T.U.
MINNESOTA		
Univ. of Minnesota	Wesley W. Spink, M.D. Assoc. Prof. of Medicine	C.A.
	Ashton C. Cuckler, Ph.D. Instructor in Zoology	A.M.S.—C.A.

State Institution	Instructor Title	Type of Fellowship
MISSOURI		
St. Louis University	Clinton Kleinschmidt, M.D. Instructor in Medicine	A.M.S.
	William C. MacDonald, M.D. Assistant in Medicine	T.U.
	W. A. D. Anderson, M.D. Asst. Prof. of Pathology	C.A.
Washington University	Russell J. Blattner, M.D. Asst. Prof. of Pediatrics	T.U.—C.A.
	William O. Russell, M.D. Instructor in Pathology	A.M.S.—C.A.
	Edward G. McGavran, M.D. Professor of Public Health	C.A.
Creighton University	Morris Bordkey, M.D. Instructor in Medicine	A.M.S.
	Dorothy R. Colien, Ph.D. Assoc. Prof. of Bacteriology	A.M.S.
NEBRASKA		
Univ. of Nebraska	Millard F. Gunderson, Ph.D. Assoc. Prof. of Bacteriology	T.U.—C.A.
NEW YORK		
Albany Medical College	Mabel S. Ingalls, Ph.D. Assoc. Prof. of Bacteriology	A.M.S.
	William Kaufmann, M.D. Asst. Prof. of Pathology	T.U.—C.A.
	Robert C. Korns, M.D. Dept. of Epidemiology	C.A.
Long Island Coll. of Med.	Elberton J. Tiffany, M.D. Asst. Prof. of Bacteriology	C.A.
	John M. Pearce, M.D. Assoc. Prof. of Pathology	C.A.
Univ. of Buffalo	L. Edgar Hummel, M.D. Asst. Prof. of Medicine	C.A.
	Stockton Kimball, M.D. Associate in Medicine	A.M.S.—C.A.
	Richard C. Porter, M.D. Assistant in Medicine	T.U.—C.A.
	Sarkis Anthony, M.D. Assistant in Medicine	A.M.S.—C.A.
Columbia University	Thomas H. Hunter, M.D. Assistant in Medicine	A.M.S.—C.A.
	William J. Pyles, M.D. Instructor in Pathology	T.U.—C.A.
	David D. Rutstein, M.D. Instructor in Medicine	C.A.
Cornell University	Thomas P. Almy, M.D. Instructor in Medicine	A.M.S.—C.A.
	Jacob Furth, M.D. Assoc. Prof. of Pathology	T.U.—C.A.
New York Medical College	Lois C. Lillick, Ph.D. Instructor in Bacteriology	T.U.
	Thomas H. McGavack, M.D. Assoc. Prof. of Medicine	C.A.
New York University	Dominic L. DeGiusti, Ph.D. Instructor in Preventive Medicine	A.M.S.—C.A.
	Sigmund L. Wilens, M.D. Asst. Prof. of Pathology	C.A.
	Alan W. Bernheimer, Ph.D. Asst. Prof. of Bacteriology	A.M.S.—C.A.
Univ. of Rochester	Howard B. Slavin, M.D. Asst. Prof. of Medicine	A.M.S.—C.A.
	Paul A. Lembcke, M.D. Instructor in Epidemiology	C.A.

State Institution	Instructor Title	Type of Fellowship
Syracuse University	Bertram Levinson, M.S. Asst. Prof. of Medicine	A.M.S.—C.A.
	Oren D. Chapman, M.D. Professor of Bacteriology	C.A.
	Justus F. Mueller, Ph.D. Lecturer in Parasitology	T.U.
NORTH CAROLINA		
Bowman-Gray Sch. of Med.	George T. Harrell, M.D. Asst. Prof. of Medicine	A.M.S.—C.A.
	Thomas J. Brooks, Ph.D. Instructor in Preventive Medicine	T.U.—C.A.
	Edward S. King, M.D. Professor of Bacteriology	A.M.S.—C.A.
Duke University	Donald S. Martin, M.D. Associate in Medicine	A.M.S.—C.A.
	Roger D. Baker, M.D. Associate Prof. of Pathology	T.U.—C.A.
	Norman F. Conant, Ph.D. Asst. Prof. of Bacteriology	A.M.S.
OHIO		
Univ. of Cincinnati	Arnold G. Wedum, M.D. Asst. Prof. of Bacteriology	T.U.
	William McK. Germain, M.D. Asst. Prof. of Pathology	C.A.
	Leon Goldman, M.D. Asst. Prof. of Dermatology	C.A.
Western Reserve University		
Ohio State University	Henry E. Wilson, M.D. Instructor in Medicine	A.M.S.—C.A.
OKLAHOMA		
University of Oklahoma	Donald B. McMullen, Sc.D. Assoc. Prof. of Hygiene	A.M.S.—C.A.
OREGON		
Univ. of Oregon	Harry J. Sears, Ph.D. Professor of Bacteriology	A.M.S.—C.A.
	Matthew C. Riddle, M.D. Assoc. Prof. of Medicine	T.U.—C.A.
PENNSYLVANIA		
Hahnemann Medical Coll.	Hunter S. Cook, M.D. Assoc. Prof. of Pathology	T.U.—C.A.
	Grant O. Favorite, M.D. Professor of Bacteriology	C.A.
Jefferson Medical Coll.	John H. Hodges, M.D. Fellow in Medicine	A.M.S.—C.A.
Temple University		
Univ. of Pennsylvania		
Woman's Med. Coll. of Pa.	Victor A. Digilio, M.D. Asst. Prof. of Medicine	A.M.S.
	Eleanor N. Valentine, M.D. Asst. Prof. of Medicine	T.U.
Univ. of Pittsburgh	Elwyn L. Heller, M.D. Instructor in Pathology	A.M.S.—C.A.
SOUTH CAROLINA		
Med. Coll. of S. Carolina	Francis B. Johnson, M.D. Professor of Pathology	C.A.
	Daniel W. Ellis, M.D. Associate in Pathology	A.M.S.—C.A.
TENNESSEE		
Univ. of Tennessee	Henry Packer, M.D. Assoc. Prof. Prev. Med.	A.M.S.—C.A.
	Lemuel W. Diggs, M.D. Assoc. Prof. of Medicine	C.A.
	Anna D. Dulaney, Ph.D. Asst. Prof. of Pathology	T.U.

State Institution	Instructor Title	Type of Fellowship
Meharry Medical College	William H. Grant, M.D. Professor of Pathology	A.M.S.
Vanderbilt University	William W. Frye, M.D. Assoc. Prof. of Prev. Med.	C.A.
TEXAS		
Baylor University	Milton M. Fisher, M.D. Instructor in Bacteriology	A.M.S.—C.A.
Southwestern Medical Coll.	James Baxter, M.D. Fellow in Medicine	A.M.S.—C.A.
Univ. of Texas	Paul Brindley, M.D. Professor of Pathology	A.M.S.—C.A.
	Wendell Gingrich, Sc.D. Assoc. Prof. of Bacteriology	A.M.S.—C.A.
	George Hermann, M.D. Professor of Medicine	C.A.
VERMONT		
Univ. of Vermont		
VIRGINIA		
Univ. of Virginia	Carleton Casey, M.D. Instructor in Medicine	A.M.S.—C.A.
	Francis D. Smith, M.D. Instructor in Pathology	T.U.
Med. College of Virginia	J. H. Scherer, M.D. Asst. Prof. of Medicine	T.U.—C.A.
WISCONSIN		
Univ. of Wisconsin	Frances E. Holford, Ph.D. Assoc. Prof. of Bacteriology	A.M.S.
	Arthur L. Tatum, M.D. Prof. of Pharmacology	C.A.
	Walter H. Jacschke, M.D. Asst. Prof. of Pathology	T.U.
Marquette University		
	TWO-YEAR SCHOOLS.	
ALABAMA		
University of Alabama		
MISSISSIPPI		
Univ. of Mississippi		
MISSOURI		
Univ. of Missouri	Raymond W. Wilhelmi, Ph.D. Asst. Prof. of Zoology	A.M.S.—C.A.
NEW HAMPSHIRE		
Dartmouth Medical School	James F. Crow, Ph.D. Instructor in Prev. Med.	T.U.—C.A.
	Reginald K. House, M.D. Asst. Prof. of Pathology	A.M.S.—C.A.
NORTH CAROLINA		
Univ. of North Carolina	Russell L. Holman, M.D. Professor of Pathology	A.M.S.
	Daniel A. MacPherson, Ph.D. Professor of Bacteriology	T.U.
NORTH DAKOTA		
Univ. of North Dakota	Francis C. Lawler, Sc.D. Professor of Bacteriology	T.U.—C.A.
SOUTH DAKOTA		
Univ. of South Dakota	Einar Loifson, Ph.D. Head, Dept. of Bacteriology	T.U.
UTAH		
Univ. of Utah	James E. Davis, M.D. Asst. Prof. of Medicine	T.U.
WEST VIRGINIA		
Univ. of West Virginia		

CANADIAN SCHOOLS

State Institution	Instructor Title	Type of Fellowship
ALBERTA		
Univ. of Alberta	John W. Scott, M.D. Assoc. Prof. of Medicine	A.M.S.—C.A.
	Robert M. Shaw, M.D. Professor of Bacteriology	T.U.—C.A.
	John W. Macgregor, M.D. Assoc. Prof. of Pathology	A.M.S.—C.A.
MANITOBA		
Univ. of Manitoba		
NOVA SCOTIA		
Dalhousie University	Lewis B. Woolner, M.D. Assistant Pathologist	A.M.S.—C.A.
ONTARIO		
Queen's University	John Wyllie, M.D. Professor of Preventive Medicine	A.M.S.—C.A.
Univ. of Western Ontario	Gerald H. Collyer, M.D. Instructor in Medicine	T.U.
Univ. of Toronto	A. Murray Fallis, Ph.D. Demonstrator in Hygiene	T.U.—C.A.
	Ella Kuitunen, Ph.D. Demonstrator in Hygiene	A.M.S.
QUEBEC		
McGill University		
Univ. of Montreal		
Laval University		
SASKATCHEWAN		
Univ. of Saskatchewan	Leslie G. Saunders, Ph.D. Professor of Parasitology	T.U.—C.A.
	George W. Rea, M.D. Professor of Parasitology	A.M.S.—C.A.

APPENDIX B.

Schools listed according to the number of teaching hours in parasitology 1945.

	Hrs.		Hrs.		Hrs.
1. Tulane	114	31. South Carolina	60	61. Buffalo	37
2. So. California	112	32. Montreal	60	62. Oregon	36
3. Syracuse	100	33. Dartmouth	60	63. Cornell	36
4. Rochester	96	34. Vanderbilt	55	64. Johns Hopkins	33
5. Nebraska	85	35. Illinois	54	65. Harvard	33
6. New York Univ.	84	36. Southwestern	51	66. Long Island	32
7. Louisiana State U.	80	37. Cincinnati	50	67. Queens	30
8. Minnesota	79	38. McGill	50	68. Washington Univ.	30
9. Temple	77	39. Alberta	48	69. Yale	30
10. Louisville	76	40. Missouri	48	70. Woman's Medical	30
11. Jefferson	74	41. Western Reserve	48	71. Virginia	27
12. Geo. Washington	72	42. California	48	72. Michigan	25
13. Howard	72	43. Duke	48	73. Texas	24
14. Iowa	72	44. Med. Coll. Virginia	48	74. Ohio State Univ.	22
15. Indiana	70	45. Wisconsin	47	75. Toronto	21
16. Albany	68	46. Utah	45	76. Med. Evangelists	16
17. Georgia	66	47. Pittsburgh	45	77. Northwestern	15
18. Baylor	66	48. Stanford	45	78. Loyola	12
19. Meharry	66	49. Hahnemann	45	79. Vermont	9
20. Columbia	65	50. Boston	45	80. Western Ontario	0
21. Pennsylvania	65	51. Marquette	45	81. Mississippi	0
22. Tennessee	64	52. Arkansas	44		
23. St. Louis	64	53. West Virginia	44	**Not Sufficient Information**	
24. Tufts	64	54. North Dakota	40	82. Alabama	
25. Georgetown	64	55. South Dakota	40	83. Bowman-Gray	
26. Oklahoma	64	56. Manitoba	40	84. Maryland	
27. Wayne	60	57. Dalhousie	40	85. Emory	
28. North Carolina	60	58. Chicago	40	86. Kansas	
29. Colorado	60	59. Saskatchewan	40	87. Laval	
30. New York Med. Coll.	60	60. Creighton	38		

APPENDIX C.

Four year schools listed according to the number of teaching hours in tropical medicine 1945.

	Hrs.		Hrs.		Hrs.
1. Yale	100	28. Oregon	22	55. Pittsburgh	11
2. Alberta	80	29. Columbia	22	56. Southwestern	10
3. Wisconsin	65	30. Colorado	20	57. Woman's Medical	10
4. Creighton	63	31. Cornell	20	58. Western Ontario	7
5. Boston	52	32. Manitoba	20	59. Cincinnati	6
6. Georgetown	48	33. So. California	20	60. Louisville	6
7. California	48	34. Syracuse	20	61. Howard	0
8. Marquette	45	35. Western Reserve	20	62. Emory	0
9. Meharry	44	36. Illinois	18	63. Georgia	0
10. Kansas	40	37. Nebraska	17	64. Dalhousie	0
11. Harvard	36	38. Michigan	16	65. Toronto	0
12. South Carolina	36	39. Virginia	16	**Unspecified No. of Hours**	
13. Louisiana St. Univ.	32	40. New York Med. Coll.	16	66. Arkansas	
14. Tulane	30	41. Med. Evangelists	15	67. Indiana	
15. Baylor	30	42. Northwestern	15	68. Minnesota	
16. Iowa	26	43. Queens	15	69. Vanderbilt	
17. Buffalo	25	44. Tennessee	14	70. Utah	
18. Geo. Washington	24	45. Jefferson	14	71. McGill	
19. Johns Hopkins	24	46. Pennsylvania	14	72. Oklahoma	
20. Wayne	24	47. New York Univ.	13	73. Temple	
21. Duke	24	48. Loyola	12	74. Long Island	
22. Vermont	24	49. Tufts	12	**Insufficient Information**	
23. Maryland	24	50. Albany	12	75. Bowman-Gray	
24. Texas	24	51. Hahnemann	12	76. Washington Univ.	
25. Rochester	24	52. Med. Coll. Virginia	12	77. Laval	
26. Stanford	22	53. Montreal	12	78. St. Louis	
27. Ohio State	22	54. Chicago	11		

APPENDIX D.

FINANCIAL STATEMENT.

Appropriations from Markle Foundation, 1942-1945:		
Fund No. 1. Intramural Fellowships	$ 44,228.17	
Fund No. 2. Distributing Center	1,000.00	
Fund No. 3. Central American Fellowships	70,771.83	
Total		$116,000.00
Expenditures, 1942-1945:		
Fund No. 1. Intramural Fellowships	$ 43,186.22	
Fund No. 2. Distributing Center	399.56	
Fund No. 3. Central American Fellowships	70,822.54	
Total		$114,408.32
Balance, December 31, 1945		$ 1,591.68
Refund of deposit for Pan-American Airways Contract		250.00
		$ 1,841.68

The Program of Premedical Training at Vanderbilt University

LOUIS J. BIRCHER
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For a period of twenty-two years there has been in operation at Vanderbilt University a rather rigid three year premedical education program preparing students for senior in absentia status at the Vanderbilt University School of Medicine. This program has been quite successful and it may indicate one approach to the very difficult problem of premedical education.

In 1921, Vanderbilt University planned a new medical school to be located on the main campus of the university, and in anticipation of the opening of this school in the fall of 1925, a committee was appointed under the chairmanship of the late Dr. E. E. Reinke, then professor of biology at the university, to outline a course of study that would adequately prepare groups of selected students for the study of medicine. This committee included or actively consulted with Dr. G. Canby Robinson, then dean of the new medical school, Dr. Chas. Swisher, professor of physics, and others. The courses recommended for inclusion in the program were: 1 year of English, 2 years of German (later changed to French or German), 1 year of mathematics, 1 year of physics, 1 year of inorganic chemistry, 1 year course in chemistry to consist of quantitative analysis and physical chemistry, 1 year of organic chemistry, 1 year of general biology, 1 year of comparative anatomy and embryology, 9 (later 8) term hours of psychology, and such additional hours and subjects as would meet the requirements for the A.B. degree. The course went into effect with a group of sophomore students in the fall of 1923.

The committee felt that in preparing students primarily for a medical school accepting only selected seniors in absentia, or students with a degree, the program for these students should contain more science subjects than the minimum suggested by a committee of the American Medical Association which will permit a two year preparation for medical schools, without unduly increasing the proportion of science in the proposed three year premedical program. One of the chemistry professors was asked to develop a course consisting of one-half year each of quantitative analysis and physical chemistry for these students. It was hoped that these half year units would be well planned and not simply the first half of the year course intended for the chemists and chemical engineers.

Perhaps it is significant that 14 years after this 3 year program was put into effect, a survey of the opinions of the deans of some 49 approved medical schools of America made by Grady and Chittum[1] showed, almost without exception, that

1. Grady and Chittum, "Premedical Training," J. Chem. Educ. 13, 528, 1936.

the courses recommended by this committee were the courses that 35 or more of the 41 deans who cooperated in the survey demanded or recommended for premedical training.

SUCCESS OF THE PROGRAM.—Students who have taken the 3 year premedical program at Vanderbilt University have constituted one-third to one-half of each entering class of the Vanderbilt University School of Medicine over a period of 20 years. The other 25 or 30 students of each entering class are selected each year from 500 to 600 applicants from colleges all over America and usually not more than 2 or 3 are chosen from any one of these colleges. In that period the Vanderbilt 3 year premedical students have competed successfully with the other students admitted to these classes, although most of the latter had 4 years of premedical training. The Vanderbilt men have always expressed an appreciation of the splendid background they received through this 3 year program. In an effort to find out how the graduates who have followed this program react to the various phases of this course, a questionnaire was recently sent to the members of two of these classes of students. This questionnaire and the replies of these students will be presented later on in this report.

Failures in the medical schools occur most frequently in the freshman year and often it is biochemistry that gives the students trouble. Some departments of biochemistry in medical schools feel that they can teach the theory and technique of quantitative volumetric analysis, the physical chemistry of solutions, colloids, hydrogen ion equilibrium, and give adequate training in biochemistry; other departments see to it, or hope that the majority of their students will have some training in these background fields so that they can give most of their time to biochemistry.

Vanderbilt, like many other colleges, is preparing some of its students to meet the standards of the medical schools who pitch their medical science courses at the higher level. In recent years, many more colleges are offering brief courses in physical chemistry to meet the needs of premedical students and of other students who are not intending to become chemists. In some colleges a course in physical chemistry which teaches basic principles is replacing in the premedical program courses in physiological chemistry or biochemistry which were taught often to "prep" their students for the biochemistry course in the medical school. The taking of medical school subjects such as biochemistry in the premedical program is usually discouraged.

During the past thirty years, the percentage of students entering medical schools with more than just two years of college work and who have had advanced work in biology has increased considerably so that in some medical schools the courses in anatomy and physiology are so taught that even the better students feel that a course in comparative anatomy and embryology in the premedical course is imperative. Replies to one of the questions in the questionnaire presented below show that our students now in the medical school have this feeling.

THE "CULTURAL" VALUE OF THE THREE YEAR COURSE.—The question

often asked, is, "Is the 3 year premedical course cultural or liberal?" A study made several years ago in the college showed that in spite of what seemed a very heavy science load in the course, and the fact that these students take an additional 12 hours of science in the medical school, these premedical students have a more rounded education than other groups, graduating with the A.B. degree. Recognizing three areas of knowledge—the humanities, the natural sciences and the social sciences, these seniors in absentia majoring in the natural sciences took more work in the other two areas of knowledge than the students majoring in the other areas took outside of their major field. A recent study showed that one class of these premedical students took 38 per cent of their work in the humanities and the social sciences. (The accelerated program has reduced the proportion of nonscience courses somewhat for the last two classes of students.)

A very large proportion of the students at Vanderbilt University elected to Phi Beta Kappa are the senior in absentia premedical students. Their education is liberal enough to meet the standards of this organization.

It is felt by many that "culture" is not a matter of the area of knowledge in which one majors, but the thoroughness of the work done and the attitudes developed. The statement of Dr. Lee Irvin Smith[2] that every student does not need to take courses in the liberal arts to acquire some culture, seems significant. According to Professor Smith, this seems to be conclusively shown by the graduate record examinations given a few years ago to every entering graduate student at the University of Minnesota. The examinations covered seven fields: mathematics, physics, chemistry and the biological sciences; history, government and economics; literature; fine arts, with an additional score called the verbal factor. He states that the chemists, physicists and mathematicians walked off with the prizes, scoring around 520 against 440 for all of the others. "In many cases, chemists knew as much about history, fine arts or English as did the majors in those subjects." It seems that those who do well in the science fields gain as much from fewer college courses in the humanities and social sciences or from the courses they had in these areas in the high school, as those students who take more work in these fields but do not have the "scientific mind." Many of these premedical students at Vanderbilt University elect a second course in English and they are usually considered good students in the course.

The course is considered "hard." It is intended for a number of selected students who can make the quality point standard which will guarantee senior in absentia status. They must make enough quality points to assure graduation before they enter the medical school. Keeping these students in a core of basic courses, where competition is keen, makes it possible to select the more competent students for strong recommendation to a medical school. Evaluation of student ability is less possible on the basis of elective courses where competition between courses for students is keener and standards of teaching and grading are less uniform.

2. Smith, Lee Irvin, "Problems in Postwar Education," Chem. & Eng. News, 23, 338, 1945.

AN APPRAISAL BY GRADUATES OF THE COURSE.—Although it has always been felt that the students who completed the three year premedical course at Vanderbilt University were quite successful at the Vanderbilt University Medical School and in the many other medical colleges attended by these students, it was thought that more tangible evidence of the reaction of our graduates to the course as a whole and to the various phases of the program would be worthwhile. The questionnaire shown in table 1 was recently submitted to all of the students

TABLE 1.—QUESTIONNAIRE AND SUMMARY OF 28 REPLIES.
REACTIONS TO VANDERBILT UNIVERSITY'S THREE-YEAR PREMEDICAL PROGRAM.

Please indicate your opinion or reaction to the following items:

I. Recognising the limited amount of time the 3-year premedical student has, how would you rate the following which are the present recommended 3-year premedical courses (a) as to whether you have found or consider them helpful, not helpful or very helpful; (b) whether these courses are long enough as they are now given at Vanderbilt or whether they should be lengthened or shortened. Check one space for each subject under (a) and (b).

Courses	Term Hours	(a) Not Helpful	(a) Very Helpful	(b) Right Amount	(b) Need More	(b) Need Less
Biology, General	12	19	1	8		
Biology, Comp. Anat., Emb.	(8)	7	0	21		
Chemistry, Inorg., Qual.	12	21	1	6		
Chemistry, Quant., Phys.	12	6	0	22		
Chemistry, Org.	12	10	0	18		
Physics, General	12	17	8	3		
English, 1st year	9	18	1	9		
Math., Col. Alg., Trig.	10	22	1	5		
Soc. Sci., Introduction	5	10	18	0		
French or German	(2 yrs.) (2 yrs.)	15	7	6		
Psychology, General	5	20	1	7		
Psychology, Adv.	3	14	3	11		

The replies to Question I (b) reflect in most instances the answers given in I (a).

II. Do you feel that at the expense of losing some of the electives the premedical students now have or by reducing some of the present required courses,

(a) Requiring all 3 year premedical students to take a second year of English would be helpful? 14 Yes: Some want Composition; others want Literature. 14 No, or By Choice.

(b) Requiring all 3 year premedical students to take 6 term hours more of physics would be helpful? 2 Yes. 26 No.

(c) Requiring all 3 year premedical students to take a term of sociology, or American history, and/or philosophy would be helpful? (State which.) 10 Philosophy; 8 American History; 5 Sociology; 4 Make it a choice; 6 None; In III (b) 11 say Etymology.

III. (a) Do you feel that your premedical training was as good, better or poorer than that of the students coming to Vanderbilt from other schools? 8 As Good. 20 Better.

(b) What changes in the program as now set up would you recommend, if any? 11 require etymology; 6 lengthen Comp. Anat. and Emb. to 12 hrs. (25 said that in I (b)); 4 more chemistry; 4 more humanities; 2 stop accelerated program; 2 biophysics; 1 biochemistry.

(c) Would you favor requiring all students entering Vanderbilt University Medical School to take 4 years of premedical training? 8 Yes (1 Yes, if financed); 15 No; 5 make it optional.

Your year in Medical School—16 1st, 12 2nd, or 3rd none.

Signature (if you prefer) 26 signed.

at the Vanderbilt School of Medicine who have completed the three year premedical program in the College of Arts and Sciences and who have just completed two years (the preclinical years) in the School of Medicine or who have completed the first year in the School of Medicine. (These are the years when the students lean most heavily on their premedical training and they are the years when fatalities in the medical school are most likely to occur.)

In reply to the letter, 28 students (about three-fourths of the students addressed) mailed back their answers to the questionnaire.

1. *General satisfaction with the course.*—It is evident from the answers to

question III (a) that these students rate their premedical training at Vanderbilt University very high: 20 out of the 28 rate their training superior to that of the students with whom they compete.

2. *Reactions to the specific courses required in the program.*—Their replies to question I show that with the exception of the social science survey course and one or two other courses to a lesser degree, these students value the courses required very highly. Few would like to see any of the required courses except the social science course reduced in amount or omitted. The social science course is a one term, 5 hours, survey course required of all candidates for the A.B. degree and is a prerequisite to all other social science courses. It seems to share the limitations of most "survey courses."

It is interesting to note that the two courses valued most highly by these students are courses not required for admission to medical schools on the basis of the usual minimum entrance requirements.

The reactions to their biology courses are interesting. In the accelerated program the second course in biology was reduced from 12 term hours to 8 term hours. These students feel keenly the loss of this 4 hours in comparative anatomy and embryology and would like to have it restored, if necessary at the expense of some of the general biology course.

The training in chemistry given them seems to be highly valued by these students with little disposition to reduce any phase of it. A few of the students suggested that in organic chemistry the premedical students should be separated from the chemists and chemical engineers. They feel, for example, that detailed studies of the synthesis of nylon, rubber, etc., is of little value to premedical students.

These students are not exclusively utilitarian in their outlook. They seem to value their training in English, French or German, mathematics, etc. Several state that they have had little occasion to use their French or German.

3. *Additional Required Subjects.*—From time to time suggestions are made that subjects other than those now required should be required of this group of students; but according to the replies received from the students, there is considerable difference of opinion on their part as to whether any of the "additional" courses should be required or not. (The replies of the deans of 41 medical schools to the questionnaire noted above showed the same difference of opinion as to the value of these courses.)

About one-half of these students would like to see an additional course in English required; the rest say "No," or that additional English should be elective. Of those who would require additional English, some say that it should be composition and the others say that it should be literature. No one advanced English course would meet the needs of all of these students. It has been my experience that the student who really needs additional work in composition will usually not elect such a course, because of the risk to him of a low quality point grade. It is difficult to convince many students that after having had 11 years

of English, 6 in the grade school, 4 in high school, 1 in college, that taking one additional course will bring "culture" or the ability to write, if he does not have it at that stage.

Ten of the 28 students feel that philosophy should be required; a smaller number want American history or sociology required. The greatest number (11) want etymology required, although that subject was not mentioned specifically in the questionnaire.

In advising the premedical students they are urged to consider advanced English, etymology, philosophy, American history and sociology in the selection of their elective courses, and an effort is made to schedule these courses so that these students can take them. The three year, nine term, premedical student can get in all of these additional recommended courses and more if he chooses.

4. *Three vs. Four Years Premedical Training.*—The answers to question III (c) show, again, a wide difference of opinion. Eight students say that 4 years of premedical work should be required. (One of them said, "Four years, if the fourth year can be financed.") Fifteen say that 3 years is enough, and 4 would leave it optional.

The plan at Vanderbilt University has been to encourage the fourth year of college work when the student and his family can afford it,* and to approve his majoring in any field of knowledge including the humanities, the social sciences and the natural sciences, as he chooses. It is also recognized that 3 year premedical students make excellent medical students if properly prepared. The majority of the students elect the three year program.

Too much weight cannot be attached to the opinion of those who have so recently completed the premedical course and have come such a short way since. They are the ones, however, who are taking the greatest hurdles on the way to the practice of medicine. Reactions of those men who have been out of school ten or fifteen years would be of interest, but conversations with many of these former students who have been out that long indicate that they continue to value their premedical training at Vanderbilt University highly. Like most serious university graduates, after fifteen years many would wish that they could have mastered more philosophy, studied more literature or history, or had more time to explore more fully the basic sciences; but most of them at that stage would have forgotten that three years (27 months) is a very short time to get in all of the knowledge that one might wish for in later life, or how much less eager these same men were to gain such knowledge in these premedical years when time, money, and quality points counted.

These graduates who took the three years premedical course at Vanderbilt during these twenty years are taking their places as leaders in the medical profession, and as teachers and research men in the medical schools; and there is evidence that many of them are continuing their education through that most effective plan if the groundwork is good, self education.

* The difference to his family for that extra year may be a minimum of $3,000.00, the difference between the outlay of $1,000.00 for the additional year at school and the possible income of $2,000.00 from an added year of practice.

Graduate Training in Ophthalmology*

(Jackson Memorial Lecture)

HARRY S. GRADLE
Chicago, Illinois

It would seem most fitting and proper that the subject of the Jackson Memorial Lecture should pertain to the question of ophthalmic education, a topic most dear to the heart of Dr. Edward Jackson. He himself lived through the era of the development of modern training, for in his early days organized teaching was non-existent in the United States. He saw the vicissitudes and struggles of the early aspirant for ophthalmic training, and he saw the gradual emergence of ordered American ophthalmology from the chaos of the last century.

Before the turn of the century, there was not any formalized training in ophthalmology in the United States. True it is that many a good ophthalmologist was developed during those days, but it was by preceptorship, in the more or less haphazard clinics of that day, or in private offices, supplemented by personal non-supervised reading. The amount of training that a man could obtain depended on his personal energy and ambition. The more fortunate journeyed to Europe, to the clinics of Vienna, Berlin, Paris and London. In many instances they were lucky enough to obtain volunteer assistantships for one or more years, but in the majority of cases they merely observed the work as it was performed by the regular personnel of the clinic. These clinics were fairly well organized and the native men obtained their training in ophthalmology by serving as assistants for five to ten years. But still there was not a formalized course of training in ophthalmology, here or elsewhere.

The foreign study and the influence of the foreign clinics became manifest here about 1900. In many of the large cities ophthalmic clinics had been in operation for 30 or even 40 years, but they were not well organized, and the majority required assistantships or internships in both eye and ear, nose and throat work. In fact, in practically all of the universities those chairs were combined, as they were in the clinics. But the spirit of ophthalmology was becoming apparent in the rank and file, and that spirit demanded adequate didactic and clinical facilities for its expression. Nor could that spirit be denied, and during the next 15 years the development of ophthalmic clinics and ophthalmic residencies progressed with startling rapidity. Ophthalmology became divorced from oto-laryngology, and succeeded in freeing itself from the dominating influence of its big brother, general surgery, so that the chair of ophthalmology in the medical schools became a separate entity. But, still, there was not formalized training in ophthalmology.

Then came the advent of the American Board of Ophthalmology, formed jointly by the three national societies, for the purpose of introducing standards

* This Lecture was to have been delivered at the 1945 meeting of the American Academy of Ophthalmology and Otolaryngology which was cancelled on account of the National Emergency.

into the training and practice of the specialty. Some years elapsed before the Board realized its importance, and formulated its aims, but almost overnight its educational influence became manifest. The requirements set up tentatively by the Board gave the ophthalmological candidates a definite idea as to the course of study necessary to pursue; an idea that in the past had been a mere will-o-the-wisp. They perceived the goal of a completely rounded ophthalmological education, and although formalized and supervised training was still lacking, they were able by industrious reading to form a fairly solid foundation upon which to build clinical training.

Gradually, formalized training began to make its appearance here and there. In one clinic a course of lectures would be given upon basic subjects, while in another the clinical aspects were treated didactically as well as practically. A post-graduate school developed a course of training in ophthalmology in which didactic and laboratory work was given simultaneously with some clinical training. And so under the influence of the Board the progress has been continuous, and throughout the country more and more opportunities are being developed for serious training in ophthalmology; training that will fit a man to become a safe and sound specialist, upon whom his people and his colleagues can rely.

Still the opportunities for formalized training in ophthalmology are below the nation's requirements. It has been estimated that a minimum of 200 ophthalmologists a year are required to maintain the present quota; but it is also agreed that the present number of qualified ophthalmologists, certificated or otherwise, is far below the number required by the population of the United States. At present the opportunities for thorough training in ophthalmology, basic, didactic, and clinical, number about one quarter of the requirements. Another half obtain training through clinical residencies, but without basic or didactic instruction. The remainder pick up what they can.

To the American Board of Ophthalmology is due unstinted praise for its efforts and accomplishments. But the Board is ever-changing, and, although universally recognized, it has no authoritative standing or academic backing. So it would seem that the time has come to incorporate the achievements and work of the Board into such form as to insure perpetuity for the ideals and accomplishments that have done so much to advance ophthalmology in this country. Such solidarity can be attained only through academic connections, and to that end it would seem fitting and proper that the gap that exists between requirements for graduation from the medical school and the certification by the American Board of Ophthalmology be filled by the university. Upon the university should fall the responsibility for formalized training in ophthalmology for a sufficient number to fill the needs of the country.

In general, formalized education in the universities is held at two main levels; the undergraduate school, culminating in a Bachelor's degree, and the graduate school, culminating in a Doctor's degree. Above that level the universities offer training only on a research or a personalized basis.

During the past 25 years the need has arisen for a third level of university training, particularly as it pertains to medicine and the medical specialties. This level should cover the period between completion of the general internship and the completion of training required by the specialty boards. That period of training, which in the majority of cases is now more or less haphazard, is definitely a function of the universities, and when assumed by them will take on a systematized character more or less standardized, as is the present work in the undergraduate medical schools.

The gap that exists between the completion of the intern year and the attainment of the certificate of the Board, is at present the major deficit in ophthalmic education, and there is no uniformity in the endeavors of the various institutions to fill that gap. One offers a one-year clinical residency without didactic training in any of the basic sciences; another considers a two-year clinical residency with a minimum of basic science training sufficient; while at the other end, is the five-year residency with complete and adequate basic training. Because of the chaos that exists under the present system, or lack of system, it is very evident that the gap should be filled under university jurisdiction and that a certain degree of uniformity in ophthalmic training on a nationwide basis should be introduced. Regimentation should of course be avoided, but a formalized curriculum could serve as a basis for training which would be varied in the universities and their associated institutions according to existent facilities.

How would such a plan function in our own specialty of ophthalmology, a specialty which is probably best prepared to institute a regular university program of graduate teaching?

It must not be forgotten that there are two classes of men who demand training in ophthalmology; those who intend to pursue an academic career of investigation or teaching, and those who intend to devote themselves to the clinical practice of ophthalmology. The first group is small in number and can be handled adequately by each institution as the case arises, and consequently requires but scant attention here. The second group outnumbers the former by a hundred to one, and hence requires more intensive study and more extensive facilities. To that group are dedicated the following pages.

Before acceptance of a student into the training realms of ophthalmology, rather extensive psychological and psychometric tests are in order, to prove the fitness of the candidate for the specialty. Included should be tests for manual dexterity, the sina qua non of an ophthalmic surgeon. Good vision, normal color perception, and perfect stereopsis are even more essential to the art of eye surgery than they are to the piloting of an airplane.

On completion of the general intern year, a period of instruction in the basic sciences so requisite to a rounded ophthalmologist, should follow. It should be given within the university walls and be operated as a regular class of the medical school. The length of time would of course vary with different institutions, but in no case should it be less than three months nor more than six. The

course should be an elaboration into detail of the basic sciences of ophthalmology as taught to the undergraduate medical student, and to that end would require a mixed faculty. The general aspects of anatomy, physiology, optics, chemistry, and bacteriology should be presented by the undergraduate teachers of those subjects in the undergraduate laboratories, whereas the application of those subjects in the realm of ophthalmology should be presented by clinical ophthalmologists who have devoted special attention to those sciences. Lectures should play but little role in such instruction, and the major pedagogical methods should be those of laboratory demonstrations and directed conferences and quizzes. The study of pathological anatomy should be instituted toward the end of such basic course as there should be no contemplation of clinical ophthalmology until after conclusion of the basic course.

The candidates are then ready to enter the period of clinical training which should be not less than two years. Obviously, the university hospitals cannot accommodate the total number, and extramural expansion is necessary. That can be accomplished by bringing into the fold such nearby general hospitals as offer an adequate residency in clinical ophthalmology, and supplementing that clinical work with university instruction. For example, there are in Chicago six large general hospitals that have clinical residencies in ophthalmology of one year each, one man at a time. These should take two residents for two years each, staggered so as to provide a senior and a junior, who have gone through the basic course at the university. The university hospitals in Chicago can take eight residents per year, with the result that each basic course would have twenty candidates.

No matter whether the resident was serving in the university or an affiliated hospital, the instruction should be the same, and should be given in the early evening after the clinical work for the day is finished. At least once, and preferably twice, a week the group should assemble at the university for clinical or pathological conferences or seminars. For such conferences, held under the direction of experienced clinical teachers, a two-year program should be prepared in advance, and the junior group and the senior group should be kept separate; otherwise one year would be merely a repetition of the preceding. At each conference the prescribed reading for the next conference should be given, and thus each resident could prepare himself in advance. The conferences and seminars should embrace the clinical aspects of ophthalmology from beginning to end, borderline topics, the relationship of ophthalmology to other medical specialties, and social and preventive ophthalmology. Pathological conferences should be held at least once a week under the ophthalmic pathologist, and each resident should be given prepared sections and clinical histories of cases, upon which he should present a prepared report at later conferences. Those studies should continue uninterruptedly throughout the entire two years of clinical residency.

On conclusion of the two years' clinical residency with its associated factors, a comprehensive oral and clinical examination should be given the residents by the combined staffs of the university and affiliated hospitals, including demon-

strations of surgical ability upon animals and patients. Successful completion of such examination should entitle the resident to a higher degree, possibly Doctor of Science in Ophthalmology, and the automatic award of the certificate of the American Board of Ophthalmology, whose examinations would then be confined to men whose training had been other than the prescribed university course.

Now let us see what this would do for the training program on a nation-wide basis. As of December, 1941, there were opportunities for approximately 180 men to be trained each year in ophthalmology, of whom about one-third received adequate basic and didactic instruction, the remainder receiving clinical training only. Under the proposed plan, at least 35 of the Class A medical schools could, and probably would participate, taking in a class of 10 to 20 men each year. That would mean 400 to 700 men adequately trained in ophthalmology each year, as contrasted with the figure just quoted. Of the 3,500 or more approved hospitals in the United States, sufficient clinical residencies in ophthalmology can be developed to take care of the extramural aspects of the program.

Approval of this plan by the American Board of Ophthalmology and by the various teaching institutions could lead to an early establishment of this, or some similar system. The University of Illinois has authorized the Department of Ophthalmology to set this plan into operation as soon as the teaching members of the ophthalmic staff are released from military service and full ophthalmic residencies are again functioning. Thus it becomes very possible that within the course of a few years, there may be attained the adequate formalized training in ophthalmology of numbers sufficient to supply the needs of the country, fulfilling the hopes of our great teacher, the late Edward Jackson.

The Place of Neurology in the Medical Firmament*

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While in training for neurology, one of our more jovial colleagues would sometimes greet his associates with the salutation, "Boy, we're a dying race." I do not believe he intended to have this greeting applied to the discipline that we were undergoing, though there are those who would have us think that he did.

Are neurologists of a dying race? What is the relationship of neurology to other medical specialties and whither is it going? The time is opportune to examine these questions.

The concept is increasingly noised about that the neurologist is neither fish nor fowl, and why does not he come forth with an acknowledgment either of psychiatry or neurosurgery. Here it may be stated that all disciplines will soon acknowledge psychiatry, if they already have not. However, merely doing so will no longer gain recognition as a specialist in psychiatry, as had been the case previously.

One may no longer join the psychiatric order by common consent or by default, since it is becoming recognized as an occupation whose expert practice requires considerable intellectual attainment. Its vistas appear limitless, and surely touch on all of living. A boundless field will not lend itself to the operation of the restricted technique of neurology. This must be obvious to anyone who has considered the matter more than superficially.

It should be noted that relationship between the specialties is not denied. I have merely stated that a thorough grounding in neurology in this day does not fit one for the practice of psychiatry, as by tacit consent it used to do. Psychiatry has become a vastly improved discipline within the past decade or two.

If the neurologist is not a psychiatrist, is he inclined to absorption by neurosurgery? I think not. The disciplines touch but I would expect them to diverge in the future. A point of convergence at the moment is everything that fits conveniently under the heading of tumor. Therefrom has neurosurgery taken much sustenance. Let us examine briefly what this connotates, beginning with neoplasm.

I have no hesitation whatsoever in predicting with considerable confidence that the treatment of glioma is not for long fated to be surgical. The results bespeak this attitude, and our knowledge of growth in general, supports the thesis. When the embryologist, chemist, anatomist or whoever he may be, tells us why an appendage does not grow to many times its normal size, the surgical approach to tumors is undermined, which in the nervous system is highly unsatisfactory, to say the least. This therapeutic change is a big order but it is logical, and no one doubts its coming.

* From the Neurological Service and Laboratory of Neuropathology of the Cincinnati General Hospital and University of Cincinnati College of Medicine.

As for other forms of tumor, with the results of modern chemotherapy who can doubt that abscess in and about the nervous system will be a rara avis? Then there are the hemorrhagic lesions, those that lend themselves to surgery being the extra- and subdural hemorrhages, as well as the encapsulated cerebral hemorrhage, i. e., the hemorrhage which has spilled little, if at all, into the cerebrospinal fluid.

As far as the hemorrhages are concerned, the delay in their appearance in the operating room is surely a contributing factor to the death of many of these patients. The ritualism that surrounds surgery has contributed to this delay. If routine is lethal, what is the good of the surgical touch?

At the Cincinnati General Hospital I have jokingly reiterated the desire for a cranial drill on the wards where neurological patients are housed, which may not be as amusing as it sounds. In my brief, personal neurosurgical experience the placing of burr holes is a simple procedure. It had better be kept in the category of simplicity for several reasons, one being the possibility that it may deviate from the surgical repertoire, a possibility enhanced by the progressing development of effective chemotherapy.

What of the idea that the usual neurosurgeon is a competent neurologist and therefore the neurologist is superfluous? I have seen little evidence to support the concept, which may be based, to a degree, on a false standard of incidence of neurological disease.

It is a well known but little heralded fact that neurological institutes attract rather fancy material, different from that observed in the general hospital. It is a gross error to base the adeptness in neurology of its inhabitants on their handling of the material within the specialized institute. Their patients are referred, and is material with which the practitioner of medicine, or the neurologist for that matter, cannot cope either at home or in the general hospital. Also these cases usually arrive with a diagnosis attached; it would be interesting to know with what percentage of accuracy.

There is no gainsaying the fact that the bulk of admissions in a free or part pay general hospital is vascular. Vascular disease of the nervous system is predicated on extracerebral factors, and, in the main, does not fall within the ken of the surgeon. Convulsive disorders of every description and in all age groups, the deliria and comatose states of varying etiology, late syphilis, and other types of meningoencephalitis bulk large in the neurological admissions to general hospitals. Manifestly neurosurgeons may be expected to be relatively unfamiliar with these surroundings.

If the semipopular notions about neurology discussed above do not hold, what, then, is the future of the neurologist? It is reasonable to presume that he will become increasingly scarce since the economics of practice will not sustain him. A consolation for him might be found in the fact that as he becomes more scarce, according to economic law he is more valuable.

The neurologist of the future may exist only within the framework of the medical school or possibly in the clinic. There he should be at a premium since

it seems certain that few will care to go through the rather large discipline including anatomy, physiology, pathology and clinic, to emerge dependent on these institutions, particularly when more generous fields are beckoning.

I envision the neurological service which will have its quota of free and private beds, and some semblance of authority as well as responsibility within the school, in other words some autonomy. I do not envision the perpetuation of the neurological institute. Isolation of neurology, as of any medical specialty, breeds misunderstanding in several directions.

House officers to man neurological beds will come from internal medicine, pediatrics, psychiatry and surgery. Service on neurology will be more or less voluntary and may be adjusted as to time. To allow for continuity of the house service, a resident or fellow or two is desirable but not requisite, since this function may be fulfilled by the visiting staff. Such residencies will supply the meagre demand for the highly trained neurologist.

As to the teaching of undergraduate neurology, I am inclined to feel that the student may be reasonably well grounded in this local technique before his graduation. For the expenditure of a total of about 70 hours to formal training in neurology in the junior and senior years, and about three months clerkship on a medical service which includes about 25 neurological beds, an alert teaching staff may inculcate methods by which the student may handle the material which comprises well over 90 per cent of neurological practice, besides instructing him in the more important laboratory procedures, particularly in the adept handling of the cerebrospinal fluid.

Whether or not a separate department is needed for neurology within the medical school probably depends on local conditions. Any move should be considered in the light of better teaching of the student and the house officer, and for the welfare of patients.

In considering the postgraduate training program, the neurological service in a general hospital must recognize the fact that certain men practicing internal medicine, pediatrics, psychiatry, or surgery, or general practice want to handle those neurological conditions that fall within their province. Physicians who have received this training have been the first to call on their teachers when they got in waters above their heads.

Thus, I think that as the tone of psychiatry improves, the latter will tend to divorce its former protector, neurology, and thenceforth will bend the latter to its specific needs, which are most likely to be in neurophysiological spheres. Research psychiatry must always include physiology. However, psychiatry does not want to encompass neurology.

Neurosurgery, on the other hand, maintains an uncertain and shifting relationship to neurology, and the neurosurgeon willing to familiarize himself thoroughly with clinical neurology will be rare.

There will always be a place, particularly in the teaching field, for learned clinicians of the type of Jackson, Mitchell, Charcot, Gowers, Head, and Foerster, to name but a few of the neurological galaxy.

The Future of Medical Education*

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To foretell the future, the past as well as the present must be studied. The last time I had the honor of appearing here, seventeen years ago, I spoke on one of your first professors, James Lawrence Cabell, for whom one of our surgical wards is named.[1] The medical education of his era, 1837-1889, was a tremendous advance from the American schools of the preceding two and one-half centuries. Many physicians, especially those who attended the University of Pennsylvania, think of it as the first American medical school, founded by John Morgan in 1765. However, since the present war brought about an increasing interest in Latin America, North Americans have discovered that medical schools had existed south of the Rio Grande for nearly two hundred years before Morgan started the medical school in Philadelphia. The Faculdad de Medicina in Mexico was founded in 1578 and that of the Universidad de Lima, Peru, in 1638.[2]

With a few exceptions, such as Virginia, Pennsylvania and Transylvania (now Louisville), many of the medical schools, both North and South, founded during the nineteenth century, were proprietary commercial ventures for the collection of fees from students and to increase the teachers' practices. They were lecture mills, usually repeating the same courses each year, followed by little or no practical work, except apprenticeship to an older physician. "Sessions at most institutions were limited to three or four months, since most of the students were already practicing and could not afford to desert their patients for a longer time. Although the course usually lasted two sessions, there was no division into grades; the pupils sat through the same curriculum twice over, on the theory that what they did not understand the first time they might understand the second."[3] Hospital and laboratory work was almost unknown.[4] Even Dr. Cabell taught human and comparative anatomy, physiology, materia medica and surgery!

Since Dr. Cabell's time, although educators frequently complain that medical education is like Mark Twain's comment on the weather—that everyone talks about it but no one does anything about it—many fundamental changes, and, I hope, improvements, have taken place, and more needed ones are contemplated.[5] These fall into at least ten groups: Premedical education, medical curriculum, research, selection of students, financing of students, financing of faculty, postgraduate education, general practice versus specialization, distribution of physicians, and socialization of medicine.

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* From the Department of Pediatrics, Duke University School of Medicine and Duke Hospital, Durham, N. C. Address before the Alpha Omega Alpha Medical Society of the University of Virginia School of Medicine, February 8, 1946.

PREMEDICAL EDUCATION

1. Premedical education, of "adeptness in Latin, Greek, French, mathematics and natural philosophy" was recommended by John Morgan in 1765,[6] and Daniel Drake, in 1820, "insisted that every pupil should have a first class education in literature, classics, French, mathematics, mechanics, history and geography. However, these premedical requirements were thrown into the dump heap whence they were salvaged with great eclat by the founders of the Johns Hopkins University; for more than a century any untrained lad was allowed to study medicine anywhere in America."[3]

There are only two main reasons for entrance requirements: (a) to provide the student with adequate preparation, both scientific and "cultural," in order to enable him to profit best from his medical instruction, and (b) to provide the medical schools with students of adequate intelligence and to keep out those who are intellectually weak and likely to fail.[7] At present, the minimal requirements for entrance into most approved medical schools are approved college credits of not less than three full academic years, which shall include adequate preparation in English, mathematics, physics, biology and chemistry. This preparation can be obtained in college courses of one year duration, except for chemistry. In that subject, a two year course is recommended: the first year to cover general (inorganic) chemistry; the second year, analytic and organic chemistry. Less than one-fifth of the schools[8] require more than these minimal requirements but practically all of them give preference to candidates who have college degrees. Why? Two of the usual reasons, cultural value and broad education, are erroneous. There is little correlation between the acquisition of culture and a study of the humanities—culture is much more likely to result from environment early in life. It is true that in 1893 a complete college course was necessary for a basic education, but the modern high schools now supply this need. A student of today, as far as subjects and hours are concerned, can obtain nearly as "broad" an education in high school as was formerly possible in college.[7] Since the majority of medical graduates are 27 years of age by the time they have had four years of college preparation before medical school and one year of hospital training afterward, and since two years of hospital training are essential for an adequate medical training, it would seem desirable to sacrifice the senior college year for an additional hospital year.[9]

The premedical student should be aware of the importance of a well rounded general education as a preparation for the study of medicine and not limit himself to scientific courses. He would be better advised to secure a knowledge of the principles and a thorough appreciation of the interrelations of the basic sciences than to accumulate credits in many courses. He should learn how to work independently, observe critically, to analyze and integrate, rather than simply store the information presented. His choice of studies, beyond those required for admission, should be governed by his own chief interests and by the intellectual stimulus to be derived from the work. His major interest may be in any field, scientific or otherwise, and should provide an opportunity for the

demonstration of his real ability. In general, he should avoid courses in subjects which are included in the medical curriculum.

Premedical education still needs overhauling.[10] The time has come when the medical school should consider the inclusion of premedical courses in their curricula similarly to the Canadian, British, Danish[11] and Swedish[12] programs. In fact, the United States of America is the only country in which the medical schools do not supervise premedical education. The universities and medical schools should have a cooperative program[13] to which the students would be admitted directly from high school to study English, mathematics, chemistry, physics and biology for the first two years with advancement to the medical courses only if they give promise of being a credit to themselves and their universities. In this way, the medical schools could provide more useful premedical preparation than is furnished at present by many of the colleges and universities, whose instructors tend to cram masses of facts and information into students without much emphasis on their understanding the subject itself or on the application or the integration of the material. It is far more important for a student to have a clear idea of the subject than it is to be befuddled by too much information about it. More emphasis should be placed on the significance or meaning of data rather than on the accumulation of data.[14]

MEDICAL CURRICULUM

2. The medical curriculum is of particular interest to me, because I arranged my own and am very conscious of its defects. By studying in Paris, London, Switzerland, Edinburgh and Dublin, I completed the curriculum of the first two years in one year, and realize now that acceleration can be carried too far. My second year, 1914-1915, I spent on active duty at the Hospital of the American Ambulance at Neuilly and with the Red Cross in Serbia during the typhus epidemic. I was given credit for the junior curriculum, and although the practical experience was interesting I missed many essential building stones. The next year was the busiest I have ever spent—being an intern at Oxford, a traveling aid to Osler during his weekly consultations at military hospitals, and demonstrating the efficacy of triple typhoid vaccine on medical students and rabbits for Dreyer. I then returned to Johns Hopkins, learned some pediatrics with Howland, did some meningitis research, and after six months joined the Army when war was declared in 1917. I have spent the past twenty-five years trying to learn the basic facts I should have acquired in medical school.

The curriculum in very nearly its present form was in existence in 1891 at a few schools. At that time it was an ideal which was still impractical for most American schools.[15] By 1915, however, it prevailed in nearly all the schools that have survived to the present day.[16] Since then it has been altered or patched by additions and deletions. There is much truth in Victor Johnson's words: "Departments just grew, and the departmental system of instruction just happened. There has resulted a scramble for student time, in which every hour of student time not specifically accounted for in the curriculum is counted as fair game.

The department with the most aggressive hunters captures these hours. The successful department is the one which has acquired the most hours into which it then crams a maximum of detail whether or not it is relevant."[17] Meanwhile, there have been profound changes in medical thought, and it appears that the time is ripe for a thorough overhauling of the whole curriculum on a more rational basis.[14]

More than four calendar years will be needed for undergraduate medical education unless the hours previously given to the older subjects—anatomy, surgery, etc.—are reduced to allow the introduction and expansion of the newer disciplines—biophysics, genetics, endocrinology, psychiatry, preventive and tropical medicine, etc. No one believes that more than four years will be available for medical schools, so reduction in some courses is essential. We are no longer graduating finished physicians and surgeons but we must provide a solid foundation on which the graduate, through internships and postgraduate study, can build his practical training for general practice or the specialties.

Although most instructors grumble about their teaching loads, a reduction is anathema to them. Fortunately, newer teaching methods allow more and better instruction in a shorter period of time. Markee has demonstrated that students learn more anatomy in a shorter time with the aid of visual instruction than with the older techniques.[18] The instruction is better as well as faster. Apparently, students remember most of the things they do, some of those they see, and only a few of those they hear.[19] Therefore, medical education must combine practical and visual methods not only to save curricular time but also to do a better job.

One experiment in medical education, which I am sorry to say failed, was in curtailing the required courses and liberalizing the curriculum so that more time would be free for elective work in any field the students desired.[20] However, they did not like it and kept asking the faculty, "What do you recommend?" This question could be answered either by returning to previous didactic instruction or by accepting the challenge which has forced us to study more thoroughly the needs of the public as well as of the students.

Another experiment has demonstrated its value. In spite of the protests of students and teachers, the accelerated schedule is right in principle and advantageous in practice. The only drawback to the Army and Navy Specialized Training Program was that it was compulsory. Only 19 per cent of our students liked it,[21] but before the war, when a similar schedule was optional at Duke, 56 per cent of the students were graduated in less than four calendar years.[22] Medical students and physicians just do not like to be regimented, or perhaps, the fact that the Duke prewar schedule had eight weeks of vacation in contrast with only four weeks in the Army and Navy program may have been a factor. A year can be saved by condensing the four medical school years of thirty-three weeks into three years of forty-four weeks each. The advantages to the medical student are obvious. He will be one year younger at graduation and will have an

additional year for hospital or other training; he will be better prepared, for he will not have lost a fortnight or a month in October of each year getting back into the intellectual stride which had been his in the preceding June, and he will see the clinical material peculiar to the summer months.

The disadvantages to the medical student have been overemphasized. For example, it is said that he needs the four months of vacation. However, practically all prewar medical students worked during their summer holidays; 50 per cent studied preclinical or clinical subjects in some place or other and if this time were spent under supervision at a medical school, the character of the work would be improved and much valuable time saved. The 50 per cent who earned money during the summer vacations could probably have earned more in the year saved under the four quarter system than in the three periods of four months each. It has been said that a medical student cannot physically endure the work of forty-four weeks a year. If so, he probably should enter some less arduous occupation, for as a physician he undoubtedly will have to work as hard, or harder, for longer than forty-four weeks a year. The total of eight weeks of vacation, which every student has under the Duke four-quarter system, should be sufficient for any one. The argument that the summer climate of Durham or of any other city would be injurious to medical students would be vigorously answered by the weather statistics of chambers of commerce, and also by the realization that the major part of the population remains at work all summer and that practically all the physicians continue their practices. As a matter of fact, if any student prefers to study four calendar years of thirty-three weeks each, and there always are a few of the "slower" ones who should be encouraged to take more time, he can do so under our optional curriculum.[23]

A third experiment, namely the preceptorial system, was a draw. There were two variations—holding clinical conferences for first year students and placing seniors with general practitioners for a few weeks. Sometimes both plans seemed successful[24] and at other times they were very discouraging. At any rate, we are still experimenting in the hope of finding methods which will always be successful. A variation of the second plan—encouraging pediatric and medical interns to spend a few weeks with a good rural practitioner—has been very happy, and many of these interns found that they liked rural general practice and have later gone into that field in which they are so urgently needed.

This discontent with medical education and the numerous attempts to improve it are our greatest assets and are in marked contrast with the German self-satisfaction.[25] American and German medical education were on a par after the purge of 1915,[26] but we have gone ahead while the Germans not only failed to keep pace with modern medicine, but have slid backwards. Their situation should be a constant reminder to us not to let our pride in our achievements prevent us from trying to climb higher.

RESEARCH

3. Research is necessary in medical schools, not only to extend the frontiers of medical science but also to stimulate the staff and students. Medical students

should be subjected to influences which arouse their spirit of inquiry, and medical education needs the spirit and habit of curiosity. The success of the teacher is largely dependent on his ability to incite and foster this spirit of inquiry, and his function is that of a piloting agent who offers the opportunity for the student to learn. Unless the latter soon acquires this questioning habit of mind he will go through the course of instruction in a somewhat blind way, ultimately learning tricks of medical diagnosis and therapy but without an essential understanding of the true purpose of a student of medicine.[26] Students and physicians should be encouraged to undertake at least one supervised research problem in the hope that a few of the more inquisitive may pursue independent research. This goal is only possible if the staff is dissatisfied with our present medical ignorance and is imbued with a thirst to explore the frontiers. The spirit of inquiry is as necessary in locating and treating the cause of fever in an infant as it is in conceiving of insulin. The results of the student's research may not set the world afire but he will gain the mental satisfaction of knowing more than anyone else about a small point or two. He also will learn the difficulties and pitfalls of research and develop critical judgment and a healthy scientific scepticism as an antidote to the therapeutic credulity so easily bred by pharmaceutical detail men. Students trained in this way usually, though not always, realize that medicine is changing and that in order to keep abreast of its progress they must be alert for new ideas. On the other hand, medical schools which discourage research—and there are several such—and which instruct the students so systematically and didactically that they cannot conceive of even hearing of any additional information generally produce graduates who are as sterile of new ideas as a mule.[27]

SELECTION OF MEDICAL STUDENTS

4. The selection of medical students is, or should be, one of the most important tasks of a medical faculty. A good student will become a good physician regardless of the instruction he receives, while a mediocre one rarely does.[28] The problem of the selection of these superior students is two-fold—What are these superior qualities and how can they be accurately detected? Most of us agree that if a student or physician has honesty, character, intelligence, a good memory, accuracy, application, intellectual curiosity, charity, faith, humility, hope and patience, he will surely become the "true physician," and that if he will use these qualities in his medical training and in the care of his patients, his success in practice will be assured. The extent of his professional income, which, unfortunately, does not always parallel a physician's qualities, will be determined by his business ability, energy, personality, common sense, location, hospital and other affiliations, and his specialty, factors which are sufficiently obvious.[27] Medicine, by the way, probably is the only field today in which a well educated graduate is sure of making a living and also of having security if he carries disability, life and old age insurance. Except for crowding in the

larger cities, there is no unemployment problem for American medical graduates. Every medical school receives numerous requests for physicians. At present, I have a list of 207 communities which are in need of medical service.[29] Although he will not make a fortune, as large medical incomes may be a thing of the past, the average physician's income, at present, probably is at its highest level.[30]

To appraise a student's qualities, many sources of information must be consulted, including (1) his curricular and extracurricular college record; (2) carefully prepared, confidential appraisals by teachers who know him personally; (3) the results of an interview with members of the Admission Committee or one of its Regional Representatives; (4) the Medical Aptitude Test;[31] (5) the Graduate Record Examination;[32] (6) various achievement tests,[33] and the "clinical judgment" of the Admission Committee.

FINANCING OF MEDICAL STUDENTS

5. Financing of medical students: Probably the best way by which a sufficient number of students can attend medical school is through interest bearing loan funds, which can be repaid over a period of years, and thus become available for future students. Scholarships require too great an outlay to be available widely, and usually do not create in graduates a healthy sense of obligation toward their community and university. Scholarships also encourage perjury about financial resources in applications by students who are not in need, and often create ill feeling between unsuccessful and successful applicants. On the other hand, students do not apply for interest bearing loans unless they need them. Furthermore, the same amount of money as loan funds will help far more students. For example, if the annual scholarship fund is $12,000, twenty-four $500 scholarships can be established. As soon as they are awarded, the money is gone. However, if twenty-four $500 interest bearing loans are granted, the interest each year will provide an additional loan, and at the end of ten years, judging by the experience at Duke, a substantial portion of the original $12,000 will be repaid and available for another group of students.[34] Although the medical students at Duke University pay only 28 cents of every dollar of medical school expenses,* 49 per cent of the 250 students enrolled are unable to study medicine without financial assistance. An annual loan fund of less than $12,000 has enabled all of these students to remain in school.[35]

FINANCING OF FACULTY

6. Financing of the faculty: Although no ideal solution to the salary question has been discovered, and as in a university everyone believes that he is more valuable than his colleagues, the following plan usually is adopted: the faculty is composed of two types—full time members who receive no income from private patients, and the part time staff who can treat as many private patients in the hospital and clinic as they wish and share their fees, so long as private practice does not interfere with their primary duties of instruction and research. The members of the full time faculty receive salaries comparable to those of

* Student tuition is only 9.3 per cent of the combined costs of the teaching hospital and medical school.

equal grades in similar institutions and include all teachers, technicians, secretaries, etc., in anatomy, biochemistry, physiology, pharmacology, pathology, bacteriology, roentgenology, administration, nursing and dietetics, and one or more instructors and all technicians, secretaries, etc., in medicine, neuropsychiatry, obstetrics, pediatrics and surgery. Medical schools, however, must raise salaries, particularly in the preclinical field, in order to attract medical graduates, for one of the main reasons of the dearth of M.D.'s in the preclinical sciences is economic.[13,14] It may be necessary for the universities to seek state and federal financial aid to meet this situation. The members of the part time staff are paid salaries approximately one-half of comparable full time positions and share in the income derived from the private patients in their respective fields, collected through private diagnostic clinics, which make possible the organization of a clinical staff beyond that provided by university funds.

The criticisms raised against this plan are: The part time members of the staff may charge excessive fees, they may neglect their teaching and research responsibilities in order to gain additional income from private patients, and they may share fees for work done by the house staff. Complaints on the first ground can be corrected by the heads of the departments concerned. The second criticism can be avoided by having a sufficiently large part time staff so that the private patient load and income are diluted. In some schools a ceiling is placed on private patient fees and income. The third difficulty is handled by having fellows of the private diagnostic clinic employed solely for private work and paid from the income derived therefrom.

POSTGRADUATE MEDICAL EDUCATION

Postgraduate medical education is a perennial problem. All medical graduates should be required by their schools or the state medical licensing boards, preferably the former, to spend two years in hospital or laboratory work. University hospitals should provide as many internships and residencies as possible for graduates of other schools as well as of their own school. The universities should regard them as being graduate students, as are those in the graduate schools of arts and sciences. The good physician must be a life long student. He should subscribe to and read the current medical literature. He should keep his library modernized by the purchase of well considered books—all habits which would tend to become fixed during two years in hospital or laboratory work. If all physicians were keen students of medicine and had had two years of hospital training, the local medical society would be the best place for postgraduate training.[36]

However, especially since Pearl Harbor, many graduates have not had adequate hospital training and the medical schools and hospitals must supply it quickly and continuously. Obviously, there must be a variety of possibilities, which will provide whatever type of training the returning medical officer or the practitioner desires. Refresher or brush-up courses must be provided, although it is realized that they are the least satisfactory method of postgraduate

education. However, many of the medical officers who have been in practice may wish to return to their homes as quickly as possible to start rebuilding their incomes, and many busy practitioners do not feel that they can be away for long periods, so these refresher courses must be arranged in repeated short doses, emphasizing the recent medical advances, to accommodate the physicians who can spare only a week or two at a time.

Other returning medical officers, as well as some of the practitioners, may wish three to twenty-four months of hospital training in the specialties, and additional residencies must be provided. For example, the North Carolina teaching hospitals had six prewar approved pediatric residencies, but arrangements have been made with the pediatricians in the other hospitals for ten additional pediatric residents. Under this plan, the hospitals can appoint sixteen residents instead of the usual six, each of whom would spend from three to six months at one or more of these hospitals under the supervision of a licentiate of the American Board of Pediatrics, thereby obtaining a broader training than would be possible in one institution. A similar program has been planned in the other specialties and combinations of specialties.

In addition, training must be provided in the basic medical sciences—anatomy, biochemistry, physiology, pharmacology, bacteriology and pathology—for at least three reasons: first, the requirements of the specialty boards must be satisfied; secondly, the practitioner needs this training to help him improve his practice of medicine, and finally it is highly desirable to encourage some of the returning medical officers to become teachers in these subjects, in which they are greatly needed if good teaching and high research levels are to be maintained after the war.[37]

Through the generosity of the W. K. Kellogg Foundation, funds have been provided at Duke for one instructor each in medicine, obstetrics and pediatrics, whose sole responsibility is to furnish and correlate this postgraduate medical program. They not only utilize all of the teaching facilities for the returning veterans, but also are organizing the instruction so that it can be continued as a long range plan for the physicians in this and surrounding states, similarly to the prewar obstetric-pediatric program supported by the U. S. Children's Bureau.

GENERAL PRACTICE

8. Any discussion of medical education must consider the future type of medical practice. The question, "Is the general practitioner doomed or is the profession overspecialized?" is easily answered. A well trained general practitioner can and does successfully treat 85 per cent of disease, and as his volume enables him to treat his patients at a lower cost, the public needs and wants more general practitioners. The fact that only 25 to 40 per cent of the present American medical graduates (even lower among the returning medical officers[38]) are or plan to be general practitioners who are needed by 85 per cent of the patients, is an indication not only of the overcrowding of the specialties but also of the urgent need and wide open opportunities for general practitioners.[39] This

plethora of specialists has caused such competition and crowding that in many communities the financial rewards of general practitioners, with their reduced competition, are higher than those of specialists. In addition, the decreased number of general practitioners and the increasing average age of those left have greatly intensified the public's need for good general practitioners.[39]

DISTRIBUTION OF PHYSICIANS

9. One of the greatest problems in medical care is the dearth of physicians in rural districts. In some counties, even before the war, the ratio of physicians to the population was as low as 1:5,164,[40] though 1:1,000 is necessary, especially in the country. This situation is not due to the lack of physicians but to their maldistribution. The United States as a whole has a physician-population ratio of 1:719. The number of prewar graduates going into rural practice was falling off all over the country, except in North and South Carolina which had had an 8 per cent increase in country doctors due to the establishment of rural hospitals through the aid of the Duke Endowment that had improved medical service in the country and had attracted young physicians there.[41] The medical schools must study this question of the need for rural practitioners, for, after all, the only excuse for medical education is the need for physicians and for medical service.

Graduates tend to return to the environment to which they are accustomed.[42] Therefore, one of our problems is to devise a plan whereby we can get more medical students from the country. They are the ones from whom the rural practitioner must be recruited. The country lawyer, the country teacher, the country banker and business man, as well as the country doctor, do not come from the cities; they come from the country.[43] At present, only 4 per cent of the Duke students are sons of farmers or come from small villages. Probably the best way by which a sufficient number of country students can attend medical school is through interest bearing loan funds which can be repaid over a period of years, thus becoming available for future students.[44]

The availability of hospitals is another weighty factor in attracting recent graduates to practice. The young, highly trained physician of today does not feel that he can practice modern medicine without access to a hospital. Of the recent prewar graduates who settled in North Carolina, only 10 per cent located in communities without hospitals.[41] In rural areas in which the towns are too small to support an individual hospital or too scattered to maintain a combined hospital, a health center with a nurse, technician and a few obstetric and emergency beds, and affiliated with a medical center, would increase the physician's effectiveness and improve rural medical service. Not only do rural communities need hospitals and laboratory facilities but equally as important, if they have a hospital, they require financial assistance to enable the people to use the hospital. The Blue Cross Hospital Associations for those who are self supporting, and county, state and federal funds for the indigent seem to be the logical answer.[44]

SOCIALIZED MEDICINE

10. Socialized medicine is another factor in medical practice which those of us in medical education must consider and with which medical students must become increasingly familiar. The main question facing the public and medical profession is not "Will medicine be socialized?" but "Will socialized medicine be extended?" Experimentation in the distribution of medical service has been taking place for many years throughout the United States, starting in Virginia, in 1773, with the provision of institutions for the insane, followed in 1800 by the Marine Hospital at Norfolk for sailors. The former was supported by taxes and the latter by a wage deduction like modern Blue Cross Hospital Associations. Hookworm, leprosy, syphilis, malaria, obstetrics and pediatrics are now among the responsibilities of state and federal governments. The problem now is how rapidly the proportion between public supported and private medicine should be changed.

Tax supported education went through the progressive steps of "poor" schools, "common" schools, and "public" schools until at present most children can obtain as good an education at state expense as they could previously at private schools and academies. Many of the latter were gradually liquidated but the better ones remained. Socialized medicine must go through the same travail and eventually universal medical service may be obtained which it is hoped will be better than the present public school system. The danger is great that if the federal or state governments take over medical practice they will not provide good medical care but only cheap service. Public education furnished more education for all of the people but the quality of it, except in a few cities, leaves much to be desired. Although, as in Scandinavian countries, medicine may be almost completely socialized the better type of private medical practice will remain just as private schools have persisted and should remain in order to maintain standards. To proceed rashly, without going through progressive stages, may produce worse medical service than exists under the present system. Ill considered and hasty legislation, such as the Wagner-Murray-Dingell bill, which establishes a three billion dollar medical care and hospitalization account under political control, is as likely to be harmful as beneficial. Whether a generation will be necessary for the transition or a century, as in public education, only sound experiment and experience can tell.[44]

SUMMARY

"The old order changeth, yielding place to new." I have mentioned some of the changes which have occurred, some which should not have happened, and others which we hope will come, but regardless of, or in spite of, our efforts, changes are constant. All we can do is to try to make them beneficial to the public and medical profession. Yours is the generation which must guide these changes or abide by the mistakes. My generation is fading out, leaving to you our accomplishments, if any, and mistakes, which are many. "Morituri te salutamus."

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Report of Committee on Promotion of Medical Research

Your Committee for the Promotion and Protection of Animal Experimentation in Biological, Medical and Dental Research and Teaching appointed by the Executive Council at the last annual meeting of the Association offers the following recommendations:

(1) That the Association sponsor an organization to be known as the National Commission for the Protection of Medical Science.

(2) That the general functions of the Commission be three-fold: (a) Education of the public relative to the necessity, importance, humane character, and accomplishments of animal experimentation in medicine and biology, through all available channels of information; (b) Aid in preventing the enactment of national and local legislation restrictive to animal experimentation, assistance to local groups to be upon request; (c) Promotion of legislation providing for the protection of animal experimentation in medicine and biology.

(3) That the following organizations and others be invited to endorse the Commission:

American Medical Association
American College of Physicians
American College of Surgeons
American Surgical Association
Association of Military Surgeons
American Dental Association
Association of American Dental Colleges
American Pharmaceutical Association
American Association of Colleges of Pharmacy
American Veterinary Association
Association of Colleges of Veterinary Medicine
American Public Health Association
American Federation of Societies for Experimental Biology
Society for Experimental Biology and Medicine
American Chemical Society
American Association for the Advancement of Science
American Association for Adult Education
National Academy of Sciences
American Association of Scientific Workers
American Red Cross
National Foundation for Infantile Paralysis
American Cancer Society
National Drug Manufacturers Association

(4) That a temporary, organizing Board of Directors of the Commission be appointed on a regional basis by the Executive Council on recommendation of the Committee presenting this report.

(5) That the location of the central office of the Commission be determined by the temporary Board of Directors.

(6) That the executive staff of the Commission tentatively consist of a Director, an Assistant to the Director, a Secretary, and a Typist, the Director to be appointed by the temporary Board of Directors.

(7) That the initial budget of the Commission be approximately $30,000 per year.

Your Committee has already circulated the member institutions of the Association to determine tentatively their willingness to support financially an activity of this type. The circularizing letter sent in May, 1945, suggested $400 and $200 per year for five years for the more and less heavily endowed medical schools respectively. To date 29 replies have been received from the 84 schools. All of the replies were favorable to the proposal. Twenty institutions indicated their willingness to accord financial support totaling $5,000 per year. Eight schools were sympathetic but unable to contribute, chiefly because they are state institutions. One school is still considering. Your Committee suggests that the 55 schools not heard from be approached again if the Association decides to sponsor the Commission. The large research institutes and the ethical pharmaceutical houses will undoubtedly wish to contribute. Additional funds should be available from the proposed endorsing organizations listed above and from other sources. In any event, there should be no difficulty in meeting the budget suggested.

Your Committee stands ready to cooperate further in every possible way toward the establishment of the proposed Commission.

A. J. Carlson, Chairman
R. B. Allen
L. R. Chandler
A. C. Ivy
C. I. Reed
P. A. Shaffer
G. E. Wakerlin, Secretary

The Borden Company Foundation, Inc.

350 Madison Avenue, New York 17, N. Y.

June 13, 1946.

To the Association of American Medical Colleges:
Gentlemen:

Pursuant to the action of your Executive Council on June 9, 1946, the Borden Company Foundation, Inc., has established a Borden Award in Medical Sciences to be administered by the Association of American Medical Colleges. This Award will consist of $1,000 in cash and a gold medal. Five successive annual Awards have been established.

The Award will be administered by the Association. It will be used for recognition of outstanding research which has been carried out by a member of the faculty of a medical school which is a member of the Association of American Medical Colleges. The Award in any year will be made for research which has been published during the preceding calendar year.

Since membership in the Association includes medical schools of the United States and Canada, faculty members in both countries will be eligible.

It is understood that the following provisions are agreeable to the Association with regard to this Award:

1. The Association will assume all responsibility for the selection of the recipients.
2. The Association may refrain from making an Award in any year in case no person reports research of a quality deserving an Award. Only one Award shall be made during any year.
3. The Association will notify the Foundation of the name of the recipient at least ten days prior to the presentation of the Award to permit preparation of the medal. The Association will provide a copy of the report giving the basis of the Award.
4. Publicity and other announcements regarding the Award will be solely under the direction of the Association. The basis of all Borden Awards and the names of recipients thereof have been set forth in brochures published without cost to the various administering associations. In case such brochures are published in the future, pertinent material used therein will be submitted for approval before publication to recipients and administering associations, as in the past.
5. No person may receive more than one Borden Award for the same research, although he may receive a later Award for a different research project. This provision is necessary because of the somewhat related fields in which the Awards operate.
6. If two or more persons who have collaborated in a project are selected for an Award, the gold medal and the check shall be presented to the group, and bronze replicas of the medals presented to each of the collaborators.

It is indeed a pleasure to establish this Award and we look forward to constructive participation in the development of further interest in research in the medical sciences.

Sincerely yours,

(Signed) H. A. Ross.
H. A. Ross, President.

(Signed) W. A. Wentworth.
W. A. Wentworth, Secretary.

JOURNAL
OF THE
Association *of* American Medical Colleges

Volume 21 JULY, 1946 Number 4

Financing a Medical School

The problem of financing a medical school has always been a difficult and a serious one. With the passing of each year it has become greater and is no nearer solution than it ever was. Only those who are immediately concerned with this problem—the administrative officers of universities and medical schools—are aware of its enormity, its seriousness, its import. The public holds the belief that a medical school is self-supporting; that student fees cover all costs. Some even believe that there is a profit at the end of the year. Medical educators know that student fees, on the average, rarely meet more than one-third of the actual cost of educating a student. State appropriations, income from endowments, grants for research, gifts and student fees are the sources of funds needed to cover the actual cost of operating a medical school. These sources of income are susceptible to considerable fluctuations—as was made very evident during the well remembered depression of the early thirties. Universities and medical schools felt this keenly in reduction of income from all sources. Faculties felt it through reduction of salaries, in some instances as high as 60 per cent.

Why this high operating cost? The teaching of medicine is necessarily costly. It calls for skills of high degree as well as an aptitude for teaching. Members of the faculty of a medical school have given many years in preparation for teaching. It has been a costly process for them. The economic situation today —the cost of living—is not what it was ten and more years ago. Hence, salaries have gone up. The cost of needed equipment is greater. Clinical facilities and teaching have become an item of expense —in many instances a considerable one. All this cost must come out of income from some source or sources. No one feels that the student should—nor can he—pay all the cost. But he should share the burden—and he does.

The public has not been apprised of this situation. The medical school belongs to the public. It is no longer a private venture. Why not render to the public an account of the financial status of medical education? There is no reason for secrecy and every reason for publicity. It would make for better understanding of the real problems of medical education and doubtless a greater willingness to underwrite it and provide adequate financial support. It is a public not an institutional problem. True, the public has given financial support through taxation and gifts, but the institution has carried all the worries on its shoulders. This is not what it should be. It is definitely not in the best interests of medical education.

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Licensure Statistics

In the May 11 issue of the Journal of the Association of American Medical Colleges the statistics on licensure for the year 1945 are presented. There is so much information of interest and value for those connected with medical colleges, especially the administrators, in these data, that they should be read carefully and analyzed for each college. Those colleges which are charged with failures by their graduates to pass a licensing examination should check and ascertain whether these failures represented each an individual or whether one individual is responsible for all the failures. The data given do not make this clear. For example, a few years ago one medical school was charged with 20 per

cent of failures—or five failures before as many state boards. On inquiry it was found that all five failures were made by one graduate.

In 1945, 27 colleges did not have any failures among their graduates, totaling 1,462 individuals or 29.4 per cent of the total listing of examinations. Twenty-eight schools had less than 5 per cent of failures; 5 schools had between 5 and 10 per cent failures and 9 schools had more than 10 per cent of failures. For seven of these schools the percentage of failures was between 10 and 15. One school had 40 per cent of failures—4 out of 10 students. The ninth school is charged with 18.4 per cent failures—9 out of 49 examinees. The total percentage of failures for all schools in the United States is given as 2.5, which compares with the same figure given for a number of years.

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Meeting Place for 1946

The Executive Council has selected for the 1946 meeting the Edgewater Gulf Hotel, Edgewater Park, Mississippi, 80 miles east of New Orleans, and on the Gulf of Mexico. Time: October 28, 29 and 30. Edgewater Park is on the main line of the Louisville & Nashville Railroad and can be reached easily from all parts of the country.

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The Borden Award Foundation

The Borden Award Foundation has given the Association of American Medical Colleges a grant of $1,000 a year and a gold medal for five years to be awarded for the most outstanding piece of research done during the preceding calendar year by a member of the faculty of a medical school in membership in the Association. This research may be done in any field and does not have to be related to milk. The grant is a reward for meritorious research. The award will be made each year during the annual meeting of the Association.

The selection of the winner of the award will be made by a committee of the Association to be appointed by the Executive Council. The personnel of this Committee will be made known shortly.

FIFTY-SEVENTH ANNUAL MEETING

EDGEWATER GULF HOTEL

EDGEWATER PARK, MISSISSIPPI

OCTOBER 28, 29, 30, 1946

College News

University of Texas Medical Branch

La Nacional Compania De Seguros Sobre La Vida, S. A. of Mexico City has made a grant to the Medical Branch to establish the Mexican Medical Fellowship in General Surgery. Doctor de Hoyos of Mexico City has been appointed Fellow in accordance with the terms of the grant and will hold the position for one year. It is the hope of the company that the fellowship may promote an increased appreciation of the importance of closer medical cooperation between Mexico and the United States. The company plans to establish similar fellowships in other medical schools and hospitals in the United States, if circumstances warrant.

Morris Pollard, Ph.D., has been appointed assistant professor of preventive medicine and director of the Virus Laboratory. Dr. Ludwik Anigstein, associate professor of preventive medicine, has been appointed special consultant in epidemic and nutritional diseases for the United Nations Relief Administration. He has been given a leave of absence for four months in order to make a trip to Poland to survey nutritional and epidemic conditions there, and to give a series of postgraduate courses for Polish physicians on the diagnosis and management of epidemic diseases. While in Poland he will also give a series of lectures to the medical students at the six medical schools now functioning in Poland.

Chauncey D. Leake, Ph.D., was the first postwar graduate medical lecturer for the Hawaii Territorial Medical Association. Doctor Leake gave a series of lectures on pharmacology and chemotherapy to the Territorial Association at the Mabel Smyth Memorial Building, Honolulu, and offered special lectures before the County Medical Societies on Kauai, Mauai and Hawaii. He was also guest speaker at the annual meeting of the Hawaii Territorial Medical Association.

Smith, Kline and French of Philadelphia have given a grant of $6,000 for the support of studies on hypertension conducted under the direction of Dr. Eric Ogden, professor of physiology. J. P. Roerig and Company of Chicago have given a grant of $5,000 for the support of special cytological studies under the direction of C. M. Pomerat, Ph.D., professor of anatomy and director of the Tissue Culture Laboratory.

Widespread state support has been received for proposals made by Dr. Arild Hansen, professor of pediatrics and director of the Child Health Program, for the expansion of hospital facilities for children in Texas. An addition to the Children's Hospital of the Medical Branch is planned, and support is being sought for a large special pediatric hospital to include some three hundred beds. With the support of the William Buchanan Foundation of Texarkana, a special study is to be made in the Department of Pediatrics of the control of infant diarrhea. Dr. Daniel C. Darrow, professor of pediatrics at Yale Medical School, will be a special research investigator in connection with the study during the summer months. The research effort is under the direction of Dr. Arild Hansen.

Through the cooperation of the State Department and the U. S. Public Health Service, two physicians from Syria are taking special postgraduate work at the University of Texas Medical Branch. Dr. Fayek Nahass has been given a special postgraduate fellowship in neuropsychiatry under the direction of Dr. Jack Ewalt, professor of neuropsychiatry and director of the State Psychopathic Hospital, while Dr. Mukhtar Wasfi holds a similar position in radiology under Dr. Martin Schneider, chairman of the Department of Radiology.

University of Utah
School of Medicine

The Radiological Service, which has heretofore been a part of the Department of Medicine, has been given full-time departmental status. Dr. Henry H. Lerner has been named professor and head of this department. Dr. Walter S. Loewe of Cornell University Medical School has been appointed Research Professor of Pharmacology.

The Abbott Laboratories, North Chicago, Illinois, have given $1,500 to Dr. Louis S. Goodman for continuation of studies on anticonvulsants, and $2,000 to the Department of Pharmacology for Research Fellowships. The John and Mary Markle Foundation has granted Dr. Leo T. Samuels, professor of biochemistry, $1,250 for the study of the adjustment of organisms to diet. The Ciba Pharmaceutical Products, Inc., has granted $3,000 to the department of pharmacology for Research Fellowships. The Winthrop Chemical Company has continued its Fellowship Fund of $1,500 per year for the years 1946 and 1947 in the department of pharmacology. The Sandoz Chemical Company has granted $1,000 to the department of pharmacology as an unattached grant for research in the field of epilepsy. The work will be done under the direction of Dr. L. S. Goodman. The John and Mary Markle Foundation has made a grant of $2,500 in support of Dr. Horace Davenport's studies of intracellular enzymes of the gastric mucosa. Dr. George Sayers, assistant professor of pharmacology, has been granted $1,000 by the Committee on Scientific Research of the American Medical Association, in support of research on pituitary adrenocorticotropic activity.

Dr. Robert E. Shank, of the Rockefeller Institute Hospital, recently delivered a lecture on his studies of Muscular Dystrophy. Dr. Philip C. Jeans, professor of pediatrics, State University of Iowa, delivered the fourth in a series of Intermountain Pediatric lectures. In the two lectures given by Dr. Jeans he spoke on "Mineral Metabolism with Special Reference to Calcium and Vitamin D," and "Dental Caries." The fifth lecturer in the Intermountain Pediatric Lecture series was Dr. Charles F. McKhann, director of pediatrics at the Western Reserve University. Dr. McKhann spoke on the subjects: "Arrest of Growth and Weight Gain in Infants," and "Respiratory Acidosis in Infancy and Childhood." On March 28-29 Dr. Cecil J. Watson, professor of medicine, University of Minnesota, delivered the second annual William R. Tyndale lecture. He spoke on "Clinical Aspects of Hemoglobin Degradation," and "Recent Studies of Hepatitis and Cirrhosis."

Dr. A. Cyril Callister, associate clinical professor of surgery, recently delivered a series of illustrated lectures at the Cardiological Institute of Mexico City, under the auspices of the National University at Mexico City, and at the University of Southern California Medical School. Dr. Callister's subject was "The Use of Tube Grafts in the Treatment of Deep Complications of Burns."

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New York University
College of Medicine

The Lions Club of New York Eye Conservation Fund, Inc., has made a grant of $2,000 per year which will provide scholarships valued at $500 each for four graduates to be selected by the department of ophthalmology for one year of advanced study in diseases of the eye.

The Robert Trubek Fellowship in Rheumatic Diseases recently established at the college is open to graduate physicians with at least two years of previous training in internal medicine, or its equivalent. The fellowship provides a one-year, non-resident appointment at an annual stipend of $2,500, and is renewable for an additional year by mutual agreement. The fellowship, to be awarded for the first time this year, will combine supervised research and special clinical training in rheumatic disorders under the direction of the chief of the Bellevue Hospital arthritis clinic.

A gift of securities has been received

from Mr. John D. Rockefeller, Jr., personally, for the New York University-Bellevue Medical Center Campaign Fund and with it Mr. Rockefeller's promise of a similar gift after $7,500,000 has been raised from other sources. The present value of the securities received is approximately $500,000. It is the understanding that the half-way mark must be reached not later than December 31, 1947, to meet the conditions of the second gift. The campaign goal is $15,000,000.

Contributions for the medical center, exclusive of this gift, the Chancellor said, now total $1,700,000, including the funds raised in two subsidiary campaigns for the Hall of Residence and the Auditorium (Alumni Hall), the latter oversubscribed by more than 20 per cent.

New York University will be responsible for six units in the medical center which in addition to the two mentioned will include a new College of Medicine, a University Clinic, a 14-floor University Hospital and an Institute of Legal Medicine. The New York Eye and Ear Infirmary will occupy a section of the University Hospital, when completed. These buildings will cover four city blocks between 30th and 34th Streets, First Avenue and East River Drive.

The University Hospital will provide moderate price (private and semi-private) facilities for patients of the University Clinic which has been specifically designed to meet the medical needs of the middle income group.

New York University is privately supported and controlled, receiving no city or state funds, but with a relatively small endowment. Its College of Medicine now trains more physicians who practice in New York City than any other medical school. One out of every eight doctors practicing in metropolitan New York is a graduate of the New York University College of Medicine.

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Medical College of Virginia

Promotions and new appointments, the session 1945-46, and others effective July 1, 1946, are given below:

Promotions: Dr. T. Neill Barnett from assistant professor to associate professor of clinical medicine; Dr. Nathan Bloom from assistant professor to associate professor of medicine; Dr. Douglas G. Chapman from associate to assistant professor of clinical medicine; Dr. Marshall P. Gordon, Jr., Dr. Wm. R. Jordan and Dr. T. B. Washington from associate to assistant professor of urology; Dr. Erling S. Hegre from assistant professor to associate professor of anatomy; Dr. Guy W. Horsley from assistant professor to associate professor of surgery; Dr. Roscoe D. Hughes from assistant professor to professor of biology; Dr. Karl L. Kaufman from associate professor to professor of pharmacy; Dr. Paul S. Larson and Dr. J. H. Weatherby from research associate to associate professor of research pharmacology; Dr. R. Campbell Manson and Dr. Allen Pepple from instructor in dermatology and syphilology to assistant professor of clinical dermatology and syphilology; Dr. Benjamin W. Rawles, Jr., and Dr. Leroy Smith from associate to assistant professor of surgery; Dr. Edward S. Ray and Dr. Elam C. Toone, Jr., from associate to assistant professor of medicine; Dr. Maynard P. Smith, Dr. Geo. N. Thrift and Dr. B. R. Wellford from associate in otology, rhinology and laryngology to assistant professor; Dr. Lewis T. Stoneburner, Jr., from associate to assistant professor of clinical medicine; Dr. James T. Tucker from assistant professor to associate professor of orthopedic surgery; Dr. Harry Walker and Dr. J. Powell Williams from associate professor to professor of clinical medicine; Dr. George Z. Williams from associate professor to professor of pathology; Dr. W. C. Winn from assistant professor to associate professor of obstetrics.

New Appointments: Dr. Randall L. Thompson, associate professor of bacteriology and parasitology; Dr. William A. Summers, assistant professor of bacteriology and parasitology; Dr. Charles E. Troland, assistant professor of neurological surgery; Dr. Delbert V. Keckele,

assistant professor of radiology; Miss Margaret Denniston, associate professor of nursing; Dr. Dwight C. Atkinson, assistant professor of exodontia and radiology; Dr. T. Wiley Hodges, assistant professor of orthopedic surgery.

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University of Oregon
Medical School

The Schering Corporation has created a research fellowship in endocrinology, with a grant of $3,000 for one year, on gonadotropic hormones. Dr. Carl G. Heller, associate professor of physiology and medicine, will make this study.

Dr. Charles N. Holman, medical didector of hospitals and clinics at the University of Oregon Medical School, succeeded the late Mr. Ralph Couch as administrator of the University of Oregon hospitals and clinics.

The research activities of the Clinical Studies Foundation are now a joint venture with the biochemistry department of the medical school. The foundation was incorporated soon after the observation in 1937 by Dr. John V. Straumfjord, Astoria, of certain skin changes in patients who were taking a daily supplement of 100,000 units of vitamin A. The purpose of the corporation was to engage in "research work to ascertain the properties of vitamins and allied substances and their therapeutic value" and to raise funds for this work. Since July, 1945, the biochemical research has been under the direction of John T. Van Bruggen, Ph.D., research associate, department of biochemistry, University of Oregon Medical School. Under the new joint arrangement the medical school agrees to extend the services of the staff of the department of biochemistry in joint administration and operation of a continuation of the study of the metabolism and function of vitamin A as well as into any other phase to which this study may lead. The work will be carried on in the Astoria Foundation laboratory, which is to be known as the Astoria Extension Research Laboratory. Dr. Straumfjord, president of the Clinical Studies Foundation, was given an appointment as research associate in the department of biochemistry at the medical school and director of the Astoria Extension Research Laboratory, the appointment to terminate on severance of the association between the Astoria Laboratory and the department of biochemistry.

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Stanford University
School of Medicine

The Winthrop Chemical Company has established a Fellowship in Pharmacology which is available to qualified medical graduates or those who have finished the fourth year in medical school, for training in research and teaching in pharmacology in the Department of Pharmacology and Therapeutics at Stanford. The Fellowship amounts to $1,800 a year.

Applications should be made to P. J. Hanzlik, M.D., Department of Pharmacology, Stanford University School of Medicine, 2398 Sacramento Street, San Francisco 15, California.

The Julian Wolfsohn Memorial Fund at Stanford provides a prize each year to the intern at the Stanford University Hospitals or the Stanford service at the San Francisco Hospital who, during the year, has done the best work in internal medicine and neurology. The Julian Wolfsohn prize consists of a certificate of award and a stipend of $100. Selection of the recipient of this prize is made each year by a committee consisting of the Executive of the Department of Medicine, the Chief of the Division of Neurology and Psychiatry and the Dean of the School of Medicine.

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University of Washington
School of Medicine

Four of the basic science department heads have been appointed. William F. Windle, Ph.D., professor of neurology, Northwestern University Medical School, has been appointed professor of anatomy and executive officer of the department. Roland F. Becker, Ph.D., and William W. Chambers, B.S., Vanderbilt University School of Medicine, have also

been named to the department of anatomy. Dr. Stuart W. Lippincott, recently released from military service, Army Institute of Pathology, has been named professor of pathology and executive officer of the department. His appointment began on March 15, but he will remain at the Army Institute of Pathology for some months, where he will select and supervise the preparation of pathologic, miscroscopic and projection slides for the department of pathology at the university. Dr. Robert F. Pitts, associate professor of physiology, Cornell University Medical College, has been appointed professor of physiology and executive officer of the department, and James M. Dille, Ph.D., formerly professor of pharmacology at the University of Washington School of Pharmacy and recently associate in physiology at the University of Illinois College of Medicine, has been named professor of pharmacology and executive officer of the department. The selection of clinical department heads and organization and development of clinical departments will be initiated as soon as the basic organization of the preclinic divisions has been satisfactorily completed.

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Medical College of Alabama

Dr. Wilmot S. Littlejohn has been named head of the newly created department of neurology and associate professor of clinical medicine for neurology.

A neuropsychiatric institute has been created and will be located in the school's teaching hospital, the Jefferson-Hillman, which will house on one floor the newly formed Department of Neurosurgery, Neurology and Psychiatry, and all patients of the institute. Diagnostic, therapeutic, research and teaching services of the institute will be available to the profession at large. This neuropsychiatric institute has been made possible by the Walter Haynes Foundation which will subsidize study and research in addition to the activities of the institute.

The staff of the institute is the same as that of the newly created Department of Neurosurgery, Neurology and Psychiatry, which is as follows: Walter G. Haynes, M.D., professor and chairman (Neurosurgery), Director of the Institute; Frank A. Kay, M.D., associate professor (Psychiatry); Wilmot S. Littlejohn, M.D., associate professor (Neurology); Donald Ramsdell, Ph.D., associate professor (Psychology); Garber Galbraith, M.D., associate professor (Neurosurgery); Samuel C. Little, M. D., assistant professor (Neurology); William B. Patton, M.D., assistant professor (Neurosurgery); Benjamin F. Morton, M.D., instructor (Psychiatry); Stanley E. Graham, M.D., assistant; William P. Tice, M.D., assistant.

The Medical College of Alabama has now acquired, under full ownership of the University of Alabama, the relatively new $4,000,000 Jefferson Hospital in Birmingham. This institution will become the teaching hospital of the Medical School. It will house both private and charity patients. The total bed capacity is 700. Final acquisition of the hospital came after Governor Chauncey Sparks relieved an outstanding indebtedness of $1,200,000. This was followed immediately by transfer of the Jefferson Hospital, Hillman Hospital, Outpatient Department and Nurses' Home to the Medical College of Alabama from Jefferson County, the former owners.

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George Washington University School of Medicine

Lt. Col. Brian Blades, chief of the thoracic surgery section of Walter Reed General Hospital, has been appointed professor of surgery to succeed Dr. Charles S. White, retired.

Washington's first diagnostic clinic to be operated in conjunction with a hospital is planned as a part of the new George Washington University Hospital. The proposed clinic will provide complete diagnostic services at reasonable cost to patients limited to the moderate income group, defined as $3,500 or less. The clinic will be staffed by the faculty of the medical school in all the major departments of medicine and surgery. It will accept only patients referred by the

patient's private physician and will not give treatment. A standard fee will be charged for this service, perhaps as low as $25. After diagnostic examination a complete report, accompanied if advisable by treatment recommendations, will be referred back to the patient's doctor.

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Temple University
School of Medicine

Dr. Theodore L. Chase, a retired Philadelphia surgeon, has increased his contribution of $450,000 to $1,000,000. The gift is to establish and endow a surgical research foundation with special emphasis on cancer.

The General Alumni Association of Temple University has selected Dr. William N. Parkinson, dean of the school of medicine and director of the Temple University Hospital, to receive the Alumni Distinguished Service Award for 1946 in recognition of his "years of conspicuous service to the university." Dr. Parkinson graduated at Temple University School of Medicine in 1911 and has been dean since 1929. He also served as assistant dean of the school from 1922 through 1925, when he was appointed chief surgeon and director of hospital work for the Florida East Coast Railroad.

An association of the Samuel S. Fels Funds Medical Research Laboratory with the Temple University School of Medicine for research in Gastroenterology and Internal Medicine has been consummated. The Fels Research Laboratory will henceforth be known as the Fels Research Institute of Temple University School of Medicine, and will be located in the medical school laboratory building at Broad and Ontario Streets. According to the agreement approved by the representatives of the agencies, the Samuel S. Fels Fund will furnish the laboratory equipment and will finance the research program covering staff salaries and the institute's operating expenses. The Management Committee of the Institute will consist of an equal number of members appointed by the cooperating groups. The Temple University members will include Dr. Robert L. Johnson, President of the University, Dr. William N. Parkinson, Dean of the Temple University School of Medicine, Dr. Charles L. Brown, Head of the Department of Medicine, and Dr. Robert H. Hamilton, Chairman of the Medical School Committee on Research. The Fels members are to be designated by their board. Dr. Harry Shay, who has been in charge of the Fels Research Laboratory since its establishment in 1934, will be continued as Director of the new Institute.

The culmination of the plan just accepted has been made possible through the generosity and foresight of Samuel S. Fels, Philadelphia manufacturer, who has long since had a deep interest in research in many fields. Mr. Fels has had the vision to see the tremendous possibility for improving the well-being of mankind by the application of scientific research techniques to human problems.

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Wayne University
College of Medicine

Dr. Walter H. Seegers has been appointed professor of physiology. Dr. Osborne A. Brines, pathologist at the Receiving Hospital, has been appointed professor and head of the department of pathology. Dr. Bert R. Stofer succeeds Dr. Mark Maun, resigned, as assistant professor of pathology. Other recent changes in personnel include the appointment of Dr. Mason M. Guest, former AAF physiologist at Wright Field, to the post of assistant professor of physiology and the promotions of Dr. Arthur L. Amolsch to professor of pathology and Dr. Dan Myers to assistant professor of clinical medicine.

A grant of $90,000 has been received to aid in the expansion of the program in psychiatry.

Dr. John M. Dorsey, director of the child guidance division of the Children's Fund of Michigan, was appointed special professor and chairman of the department of psychiatry to succeed Dr. H. A. Reye, retired.

Long Island College of Medicine

Dr. Jerome Sidney Peterson, assistant professor in the department of preventive medicine and community health and District Health officer of the Red Hook-Gowanus Health Center, New York City Department of Health, has been granted a leave of absence of one year to work with the UNRRA in China. Dr. Michael Antell, formerly district health officer of the Washington Heights Health Center, has been appointed to serve in Dr. Peterson's place.

Promotions: Dr. Thurman B. Given, from clinical professor to professor of clinical pediatrics; Drs. Morris B. Banowitch, John D. D'Albora and George Lordi, from assistant clinical professor to clinical professors in medicine; Dr. Morris Glass from assistant clinical to clinical professor in obstetrics and gynecology; Dr. Frank P. Light, from instructor to clinical professor in the same department; Dr. Mortimer A. Lasky to clinical professor of ophthalmology; Dr. Rodolph M. Cutino, to clinical professor of ophthalmology; Dr. Charles A. Woerner, assistant professor of anatomy; Dr. Leo A. Harrington, assistant clinical professor of roentgenology.

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Syracuse University
College of Medicine

The Dr. Edward C. Reifenstein Lectureship in medicine has been established by the family of Dr. Ellery G. Allen, Syracuse, to honor the many years of service of Dr. Reifenstein to the university. Dr. Reifenstein became professor emeritus of medicine on July 1, 1940, but continued to serve as chairman of the department during the war period. Dr. Edgar V. Allen, associate professor of medicine, University of Minnesota Medical School, gave the first lecture, April 8, on "The Challenge of Intravascular Thrombosis." The members of the department of gynecology have established the Dr. George B. Broad Lectureship in gynecology in honor of Dr. Broad, who became professor emeritus of gynecology July 1, 1932, but who was active in the department during the war period.

University of Oklahoma
School of Medicine

The Alumni Association of the School of Medicine has created the Fund for the Advancement of Medical Science. It will sponsor an endowment fund of $3,100,000 to establish a research institute. The construction and maintenance would cost $3,100,000 on an estimated ten year program, $2,000,000 of which must be raised initially. A survey of the project will be completed before a campaign for funds is to be started officially. A number of donations have already been received. Dr. Lamb has allocated his contribution for the creation of a research fellowship for pharmacology in memory of the late Dr. Arthur B. Chase, formerly professor of clinical medicine at the University of Oklahoma. Dr. Coyne H. Campbell, Oklahoma City, established the John Archer Hatchett Memorial Research Fund to support research fellowships at the medical school before the alumni project was begun.

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University of Chicago
School of Medicine

After July 1 Dr. Peter P. H. De Bruyn, associate professor of anatomy, will be chairman of the department. He succeeds Dr. William Bloom, who is resigning the chairmanship to become a member of the recently established Institute of Radiobiology and Biophysics at the university, but will continue as professor of anatomy.

Dr. Lowell T. Coggeshall, professor and chairman of the department of epidemiology, University of Michigan School of Medicine, has been appointed professor and chairman of the department of medicine. He succeeds Dr. George F. Dick.

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Bowman Gray School of Medicine

Dr. Lloyd J. Thompson, formerly associate clinical professor of psychiatry and mental hygiene of the department of psychiatry, Yale University School of Medicine and recently chief consultant

in psychiatry for the European theater during the war, has been named professor of psychiatry and director of the department of psychiatry. Drs. John P. Davis, Charles H. Reid, Jr., and Joseph B. Stevens have been appointed assistants in medicine. Dr. Thomas T. Mackie, New York, delivered the commencement address March 24.

"Graylyn," one of the largest residential estates in North Carolina, has been given to this school by the present owners, Mr. and Mrs. Bernard. The property comprises approximately about 50 acres and a beautiful home. It may be used by the school for a convalescent and rehabilitation center, but a definite plan has not yet been made.

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University of California
Medical School

Legislation has been enacted in California appropriating $7,500,000 to establish a new state university medical school in Los Angeles. It is proposed that the new school will be in conjunction with the University of California at Los Angeles. In San Francisco an expansion program will be carried on at the University of California Medical School under a recent $4,000,000 appropriation. The project would include two new large buildings, a medical science unit and a modern teaching patient hospital. With these additions it is planned to use the present hospital building exclusively for private patients. In addition to the recent $4,000,000 appropriation the university will receive about $2,000,000 that had been earmarked in earlier legislative sessions for additional construction and facilities to meet the needs of the medical library and the department of dentistry and pharmacy.

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University of Illinois
College of Medicine

Dr. Roger A. Harvey, of Strong Memorial Hospital, Rochester, N. Y., has been appointed professor and head of the Department of Radiology, succeeding the late Dr. Adolph Hartung.

A statute of Apollo, commemorating the founding of the first chapter of Alpha Omega Alpha, national honorary medical fraternity, on the Chicago campus of the University of Illinois in 1902, was unveiled in ceremonies at the University of Illinois College of Medicine on June 5. It will be situated between the archway of the medical, dental and pharmacy building, 1853 W. Polk, and the entrance to the University's Research and Educational Hospitals.

Dr. David Shakow, Ph.D., has been appointed chief psychologist in the Psychiatric Division of the Illinois Neuropsychiatric Institute and professor in the department of psychiatry in the college.

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Albany Medical College

Jack M. Wolfe, Ph.D., formerly Associate Professor of Anatomy, was appointed Professor of Anatomy as of January 1, 1946. Dr. Wolfe has been associated with the Department of Anatomy since 1936 and will now be in charge of it.

Dr. R. S. Cunningham, who has been Professor of Anatomy and Director of the Department since 1937, was appointed Professor of Histology, effective January 1, 1946. He will continue as Dean of the medical school.

Dr. Eldridge Campbell will become Professor of Surgery to succeed Dr. J. Lewi Donhauser, who will retire as director of the department. Dr. Campbell has been professor of neurosurgery since 1941, but with the new appointment he becomes director of the Department of Surgery in the college and surgeon-in-chief at the Albany Hospital.

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Johns Hopkins University
School of Medicine

Dr. Warfield T. Longcope, for many years professor of medicine, retired June 30. His successor is Dr. A. McGehee Harvey, assistant professor of medicine, Vanderbilt University School of Medicine.

With the appointment of Dr. Francis F. Schwentker as professor of pediatrics

and pediatrician in chief of the Johns Hopkins Hospital, an intensive program to study rheumatic fever will begin at the hospital. Dr. Helen B. Taussig has been conducting clinical research in rheumatic fever at the Harriet Lane Home for Invalid Children, an affiliate of Johns Hopkins.

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Georgetown University
School of Medicine

Doctor Harold J. Jeghers, Associate Professor of Medicine at the Boston University School of Medicine, has been appointed Professor and Director of the Department of Medicine and physician-in-chief of the Georgetown University Hospital, effective July 1, 1946. Doctor Jeghers was graduated from the Western Reserve University School of Medicine 1932, and has been associated with the Boston University School of Medicine and Boston City Hospital since 1935 and with the Evans Memorial Hospital since 1939.

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Ohio State University
College of Medicine

New appointments to the staff include those of Dr. Robert M. Zollinger, Boston, as professor of clinical surgery; Dr. Joseph L. Morton, assistant professor of roentgenology, and Dr. Arthur M. Culler, associate professor of ophthalmology, in charge of postgraduate education and research.

Dr. Samuel Saslaw received the Borden Undergraduate Research Award of $500 for his study of the problems of cellular and humoral immunity as they involve both virol and bacterial agents of infectious disease.

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Baylor Universiy
College of Medicine

Dr. Preston E. Harrison, assistant professor of bacteriology, has been awarded the Howard Taylor Ricketts Prize for outstanding research in the chemotherapy of infectious disease in the department of bacteriology and parasitology, University of Chicago. Dr. Harrison was chosen for his study of the effect of chemotherapy agents on the development of the immunity to experimental pneumococcic infection and the relation of the immune mechanisms to bacterial chemotherapy.

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Woman's Medical College

Dr. John Stewart Rodman retired as professor of surgery and accepted appointment to the Board of Corporators of the college. He will be succeeded by Dr. Lewis K. Ferguson, assistant professor of surgery in the University of Pennsylvania. Dr. Faith S. Fetterman retired as professor of urology. She will be succeeded by Dr. Stanford Mulholland, now associate professor of urology. Dr. Mary D. Pettit has been appointed professor of gynecology, succeeding Dr. Margaret C. Sturgis, retired. Dr. Margaret D. Craighill retired from the deanship. Dr. Marion Fay was appointed acting dean.

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Western Reserve University
School of Medicine

Dr. John H. Dingle will occupy the Elisabeth Severance Prentiss chair as professor of preventive medicine to succeed Dr. James A. Doull, who has joined the staff of the United States Public Health Service. Dr. Dingle is director of the commission on acute respiratory diseases in the U. S. Army Epidemiological board. Dr. George F. Badger has been appointed associate professor of biostatistics.

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University of Cincinnati
College of Medicine

The Winthrop Chemical Co. made a grant of $1,000 to support investigations on nutrition during 1946 under the direction of Dr. Tom D. Spies.

Joseph L. Schwind, Ph.D., associate professor of anatomy at Albany Medical College, Union University, since 1938, has been appointed Frances Brunning professor of anatomy.

Harvard Medical School

Dr. Kendall Emerson, Jr., formerly associated with the Rockefeller Institute, has been appointed associate in medicine and senior associate in medicine at the Peter Bent Brigham Hospital. In addition to clinical teaching and research, Dr. Emerson will be in charge of the Chemical Laboratory and the metabolic division of the hospital. Dr. Henry M. Fox, formerly associated with Johns Hopkins University School of Medicine and Hospital, has been appointed assistant professor of psychiatry and senior associate in psychiatry at the Peter Bent Brigham Hospital.

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University of North Carolina
School of Medicine

Dr. Arnold J. Lehman, professor of pharmacology, has resigned, to assume the position as chief of the division of pharmacology of the Food and Drug Administration, Federal Security Agency.

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Louisiana State University
School of Medicine

Dr. George M. Haik, New Orleans, has been appointed professor of ophthalmology. He succeeds the late Dr. Theodore J. Dimitry.

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University of Buffalo
School of Medicine

The school observed the 100th anniversary of its founding recently in April. It was the first school of the university to be organized.

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University of Maryland
School of Medicine

Dr. Robert U. Patterson, dean, tendered his resignation. It was accepted to take effect June 30.

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Tufts College Medical School

Dr. C. Stuart Welch has been appointed professor of surgery.

University of Minnesota
Medical School

Dr. Gaylord W. Anderson, Director of the School of Public Health, University of Minnesota, has recently been elected Secretary-Treasurer of the Association of Schools of Public Health. Dr. Cecil J. Watson, Professor of Medicine, was elected President of the Society for Clinical Investigation and also Recorder and member of the Council of the American Association of Physicians.

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Yale University
School of Medicine

Dr. George P. Darling, D.P.H., formerly president of the W. K. Kellogg Foundation, has been appointed Director of Medical Affairs. He will correlate the university interests represented in the Schools and Nursing and Medicine, the Department of Public Health, and the Grace-New Haven Community Hospital.

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Marquette University
School of Medicine

Dr. Eben J. Carey was guest of honor at a dinner given in recognition of his twenty-five years of service to the school as professor and director of the department of anatomy. He became dean in 1933.

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Howard University
School of Medicine

Dr. John W. Lawlah, dean and professor of radiology, announced his resignation as dean to devote his entire time to work in his specialty. The Washington *Star* announced that Dr. Lawlah had requested his resignation to take effect April 1.

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Vanderbilt University
School of Medicine

A new department of anesthesiology has been established with Dr. Benjamin H. Robbins, associate professor of pharmacology, in charge.

General News

Alpha Epsilon Delta

Alpha Epsilon Delta, national honorary premedical fraternity, sponsored a symposium on premedical advisory problems at the St. Louis meeting of the American Association for the Advancement of Science on March 29, 1946. Dr. Carlyle F. Jacobsen, assistant dean, Washington University School of Medicine, presented a discussion of the use and measurement value of the various objective methods of investigating the educational background of the student. This was followed by a discussion by Dr. George T. Harding, professor of psychiatry, Ohio State University School of Medicine, of the personality traits to be found and recognized in recommending students for the study of medicine.

The second half of the program dealt with the length and content of the premedical curriculum. Dean Stanley Dorst, University of Cincinnati College of Medicine, presented the point of view of the medical school. That of the liberal arts college was offered by Dr. Wm. H. Cole, professor of physiology and biochemistry at Rutgers University.

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Walter B. Cannon Memorial Hospital

A Memorial to Dr. Walter B. Cannon, late George Higginson Professor of Physiology at Harvard Medical School, is to be established in Toulouse, France. A hospital there, organized and staffed by Spanish refugees from Franco to serve their fellow refugees in France, is to be expanded and operated under its new name, the Dr. Walter B. Cannon Memorial Hospital. Dr. Cannon actively aided the Spanish Republicans from the start of the Civil War in 1936 to the end of his life. He became chairman of the Medical Bureau to Aid Spanish Democracy in 1937 and at his death was honorary co-chairman, Boston Chapter, Joint Anti-Fascist Refugee Committee. Through the Unitarian Service Committee, the Joint Anti-Fascist Refugee Committee has been helping the 150,000 or so Spanish refugees remaining in France after three years of war and seven years of destitution and suffering. Ineligible for aid from the Red Cross, UNRRA, or the French Government, these "people without a country" are as acutely in need of medical care as almost anyone in the world. They depend entirely on American charity.

Some 150 prominent Boston citizens, including 37 physicians, have started a drive for $75,000 to buy some of the necessary equipment for the hospital in Toulouse, and to safeguard its continued operation. All funds are managed and spent in France by the Unitarian Service Committee. After Spain returns to democracy, the memorial to Dr. Cannon will be perpetuated there.

Co-chairmen of the drive are Dr. George R. Minot, Professor of Medicine, Harvard University; Dr. Frederick May Eliot, President, American Unitarian Association; Ralph Barton Perry, Professor of Philosophy, Harvard University; and Paul T. Smith, attorney. Headquarters of the Dr. Walter B. Cannon Memorial Fund are at 14 Beacon St., Boston 8, Mass.

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The Journal of General Education

This Journal will be published quarterly by the University of Iowa. It is intended to serve instructors and administrative officers in liberal arts colleges, professional schools, teachers colleges, junior colleges and the secondary schools. More specifically, it is designed to provide an outlet for thoughtful discussions of the issues and experiments of general education. To assure representative and timely content, a board of editorial consultants assists the editor each quarter in selecting the papers to be included. The editor is Earl James McGrath.

Medical Education in Mississippi

The State Medical Education Board, in its second meeting here, discussed questions and policies affecting administration of medical education scholarship program.

It was emphasized that financial aid under this program is provided only for students who have completed premedical college courses and have been accepted by an approved medical school.

Both single and married veterans of World War II are eligible for scholarships, amount of financial aid to veterans depending on need shown, as for all other applicants for loans.

A scholarship recipient, following entrance into medical practice must serve in a community of 5,000 or less for two years before being eligible to pay off his loan. One-fifth of the loan, plus interest thereon, to be credited to the young doctor for each year of practice in his profession.

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Schering Award for Medical Students

The Schering Award for 1946, a competition open to undergraduate medical students, has recently been announced. Held annually to encourage medical students to acquire further knowledge of various fields of endrocrinology, the subject of this year's thousand dollar prize contest will be, "The Role of Hormones in Sterility." Three judges, each prominent in the field of endrocrinology, will make the selections. The award is sponsored by Schering Corporation of Bloomfield, New Jersey. For the best thesis submitted on the subject, an award of $500 will be given. For the second and third best papers, awards of $300 and $200, respectively, will be given.

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The Markle Foundation

Dr. John A. Ferrell, who recently retired from the Rockefeller Foundation to become executive officer of the John and Mary R. Markle Foundation, has resigned, effective July 1. Mr. John M. Russell, executive director of the joint army and navy committee on welfare and recreation, has been elected vice president with a view to becoming executive director on July 1. The Markle Foundation was established in March 1927 with an endownment of about $15,350,000.

Book News

A Bibliography of Infantile Paralysis: With Selected Abstracts and Annotations

Prepared under direction of the National Foundation of Infantile Paralysis, Inc. Edited by Morris Fishbein, M.D.; compiled by Ludvig Hektoen, M.D., and Ella M. Salmonsen, Medical Reference Librarian, John Crerar Library, Chicago. J. B. Lippincott Company, Philadelphia. 1946. Price, $15.

This book contains the bibliography of the periodical literature covering the clinical and investigative work on infantile paralysis since its description, by Underwood, in 1789. The material is arranged chronologically. This is an outstanding piece of work. Nothing like it has ever been published. It brings to those who are interested in infantile paralysis everything that has appeared in literature since 1789.

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Synopsis of Gynecology: Based on the Textbook, "Diseases of Women"

By Harry S. Crossen, M.D., Emeritus Professor of Clinical Gynecology, and Robert J. Crossen, M.D., Assistant Professor of Clinical Gynecology, Washington University School of Medicine. Ed. 3. The C. V. Mosby Company, St. Louis. 1946. Price, $3.

A very handy and valuable book for the medical student to be used both for study and as a refresher.

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Synopsis of Pathology

By W. A. D. Anderson, M.D., Professor of Pathology and Bacteriology, Marquette University School of Medicine. Ed. 2. The C. V. Mosby Company, St. Louis. 1946. Price, $6.50.

A very complete text although presented in small format. Profusely illustrated. Medical students should like it.

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Preoperative and Postoperative Treatment

Edited by Lt. Col. Robert L. Mason, M.C., A.U.S., Cushing General Hospital, and Harold A. Zintel, M.D., Harrison Department of Surgical Research, University of Pennsylvania School of Medicine. Ed. 2. W. B. Saunders Company, Philadelphia. 1946. Price, $7.

Completely rewritten and revised to bring it up to date with the many important advances that have been made in surgery since the first edition which appeared in 1937.

Cornell Conferences on Therapy. Vol. I

Edited by Harry Gold, M.D., David P. Barr, M.D., Eugene F. Dubois, M.D., McKeen Cattell, M.D., and Chas. H. Wheeler, M.D. The Macmillan Company, New York. 1946. Price, $3.25.

This book is too valuable to be dismissed with a few complimentary words. It is full of meat and must be read and reread in order to get all the good there is in it. It deals with the "use and abuse of bed rest;" "hypnotics and sedatives;" "psychological aspects on the treatment of pain;" "surgical measures for relief of pain;" "treatment of heart failure;" "mercurial diuretics;" "subacute bacterial endocarditis;" and a number of other clinical entities of no rarity.

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Exercises in Electrocardiographic Interpretation

By Louis N. Katz, M.D., Professorial Lecturer in Physiology, University of Chicago; Director of Cardiovascular Research, Michael Reese Hospital. Ed. 2. Lea & Febiger, Philadelphia. 1946. Price, $6.

The second edition of this work reflects the new electrocardiographic knowledge. Thirty-eight cases have been replaced by new ones and the total number of cases for interpretation has been increased to 100. Description and interpretation of each case appears opposite the electrocardiogram so that the reader can compare his own interpretation with that of the author. A brief statement of the patient's clinical status makes it possible to correlate the electrocardiogram with the clinical aspects of the case. The appendix offers a clinical classification and a classification of electrocardiographic interpretations for purposes of record finding.

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Electrocardiography in Practice

By Ashton Graybiel, M.D., Capt., M.C., USNR., and Paul D. White, M.D., Lecturer in Medicine, Harvard Medical School, with the assistance of Louise Wheeler and Conger Williams, M.D. Ed. 2. W. B. Saunders Company, Philadelphia. 1946. Price, $7.

The volume comprises five parts: (1) Essential physiologic principles and practice; (2) stress is laid on the proper appreciation of the broad range of normal patterns, with many illustrations; (3) disorders of rhythm; (4) electrocardiographic changes and patterns in the various diseases which affect the heart; (5) a series of "test" electrocardiograms, presented in random fashion for practice of interpretation.

Electrocardiography: Including an Atlas of Electrocardiograms

By Louis N. Katz, M.D., Professorial Lecturer in Physiology, University of Chicago; Director of Cardiovascular Research, Michael Reese Hospital. Ed. 2. Lea & Febiger, Philadelphia. 1946. Price, $12.

The entire text has been thoroughly revised and largely rewritten. The expanded material has increased the number of pages by 50 per cent and has necessitated the division of the text into twenty-three chapters instead of the original sixteen. Obsolete illustrations have been eliminated and 249 new ones have been added. Summary tables have been introduced to make the volume better adapted to beginners without detracting from its utility to the more advanced students. For the most part, the universal nomenclature established by the American Heart Association has been followed. The few departures from it are deliberate and considered and the reasons are explained. A new chapter on terminology has been included. A new chapter on axis shift and heart strain has also been introduced. The chapter on transient changes in acute illness has been recast to reflect recent discoveries and that on chronic diseases has been expanded. Throughout, the extensive revisions reflect the increasing importance of the electrocardiogram in determining etiology and diagnosis.

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Clinical Laboratory Diagnosis

By Samuel A. Levinson, M.D., Professor of Pathology, and Robert P. MacFate, Ph.D., Assistant Professor of Pathology, University of Illinois College of Medicine. Ed. 3. Lea & Febiger, Philadelphia. 1946. Price, $10.

A very good book, integrating anatomy, physiology and symptomatology with the clinical pathology. Also discusses the procedures applicable to legal medicine and toxicology. Skin tests and histologic technic are given adequate attention.

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Water Treatment and Purification

By William J. Ryan, M.E. Ed. 2. McGraw-Hill Book Company, Inc., New York. 1946. Price, $2.75.

Describes and illustrates the design and operation of sedimentation tanks, coagulation basins, chemical feeding devices, filtration plants, softening apparatus, ion exchange apparatus, sterilization processes, etc., and also states the chemical reactions that take place in the different water treatments.

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The Improvement of Teaching Education

Final Report by the Commission on Teacher Education. American Council on Education, Washington, D. C. 1946.

A History of Medicine

By Douglas Guthrie, M.D., F.R.C.S. Ed., F.R.S.E. With an introduction by Samuel C. Harvey, M.D., Wm. H. Carmalt Professor of Surgery, Yale University School of Medicine. J. B. Lippincott Company, Philadelphia. 1946. Price, $6.

This is a short, but comprehensive and authoritative account of the history of medicine that is a genuine pleasure to read. It presents the philosophic aspect of a great profession. It brings life and meaning to the background and tradition of medical practice. It covers the chronologic and geographic march of medicine, presenting the work of men great and small, relating countless, pertinent anecdotes which describe the fashions and sects in medicine throughout the ages. It is delightfully written and most fascinating. No one can read this book and not feel that his time has been well spent. It reads like a fine novel. It is well illustrated; is replete with bibliographic references and has an excellent index. The book can be recommended highly.

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Men Without Guns

Text by Dewitt Mackenzie, War Analyst of the Associated Press; descriptive captions by Major Clarence Worden, M.C., U. S. Army; Foreword by Major General Norman T. Kirk, Surgeon General U. S. Army. Illustrated by 137 plates from the Abbott Collection of Paintings owned by the U. S. Government. The Blakiston Company, Philadelphia. 1946. Price, $5.

This beautiful book records the work of the Army Medical Corps in the war. The story is told in words and pictures, many in colors, of the services of the doctors, nurses and enlisted men on the battlefields and in the hospitals of Europe and Asia. It is an authentic, very much alive and stirring account of the men who fought without guns to save human life. It is a book well worth having, a real addition to any one's library.

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A Textbook of the Practice of Medicine

By various authors. Edited by Frederick W. Price, M.D., Consulting Physician to the Royal Northern Hospital, London. Ed. 7. Oxford University Press, New York. 1946. Price, $13.50.

For reference; 2,000 pages. Most complete.

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A B C of Medical Treatment

By E. Noble Chamberlain, M.D., Lecturer in Medicine, University of Liverpool. Oxford University Press, New York. 1946. Price, $3.

A very handy book for the student. Will prove helpful.

Renal Diseases

By E. T. Bell, M.D., Professor of Pathology, University of Minnesota. Lea & Febiger, Philadelphia. 1946. Price, $7.

The book is in part a compilation of studies on renal diseases carried on by the author during the past twenty-five years. To these studies he has added a large amount of new material. The work reveals the structural changes in the kidneys, the pathological physiology is fully presented and the clinical manifestations of each disease are discussed. Particular stress is laid on the relation of hypertension to the kidneys and there are full discussions of the toxemias in pregnancy and the renal lesions in diabetes. In the exposition of each renal disease the author has correlated the structural changes with the clinical manifestations.

◆ ◆

A Textbook of Bacteriology and Immunology

By Joseph M. Dougherty, Ph.D., Professor of Bacteriology, Villanova College; and Anthony J. Lamberti, M.S., Instructor in Bacteriology and Parasitology, Temple University School of Medicine. The C. V. Mosby Company, St. Louis. 1946. Price, $4.50.

This book is written for premedical students. The author is of the opinion that students should come to medical school with knowledge of bacteriology and immunology. The book is a strong argument in favor of the author's contention.

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New Drugs

By Arthur D. Herrick, with foreword by Austin E. Smith, M.D., Secretary, Council on Pharmacy and Chemistry of the American Medical Association. Revere Publishing Company, New York. 1946. Price, $4.

The purpose of this book is to provide the information which will enable those concerned in any way with drug therapy to become acquainted with the responsibilities involved in the release of new drugs to the public. Every physician will do well to have a copy of this book for ready reference.

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Human Embryology

By Bradley M. Patten, Professor of Anatomy, University of Michigan Medical School. The Blakiston Company, Philadelphia. 1946. Price, $7.

Each aspect of the subject is developed in a systematic and stimulating manner while demonstrating its importance in practical medicine. The illustrations, numbering nearly 1,400, were drawn by the author or under his supervision. It is hoped that this embryology will meet the needs of the medical student.

The Principles and Practice of Tropical Medicine

By L. Everard Napier, formerly Director and Professor of Tropical Medicine, Calcutta School of Tropical Medicine. Formerly Visiting Professor of Tropical Medicine, Tulane University of Louisiana School of Medicine and Visiting Professor of Medicine, New York University. The Macmillan Company, New York. 1946. Price, $11.

This book fulfills all the requirements of a good textbook for the medical student on tropical diseases. It fills a real need at this time. It is complete and is well illustrated.

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The Management of Fractures, Dislocations and Sprains

By John Albert Key, M.D., Clinical Professor of Orthopedic Surgery, Washington University School of Medicine, and H. Earle Conwell, M.D., Orthopedic Surgeon to the Tennessee Coal, Iron and Railroad Company, and Orthopedic Surgeon to many Hospitals in Birmingham, Alabama. Ed. 4. The C. V. Mosby Company, St. Louis. 1946. Price, $12.50.

A monumental work which covers the entire subject fully and well. Fine for the practitioner, but too big for the medical student.

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A Manual of Tuberculosis

By E. Ashworth Underwood, M.D., with an introduction by Professor J. R. Currie, University of Glasgow. Ed. 3. The Williams & Wilkins Company, Baltimore. 1946. Price, $4.50.

Students will appreciate this book. It is of convenient size, concise yet complete in information on the subject; well indexed and with a good glossary.

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Synopsis of Obstetrics and Gynecology

By Aleck W. Bourne, M.B., Consulting Obstetric Surgeon Queen Charlotte's Hospital, London. Ed. 9. The Williams and Wilkins Company, Baltimore. 1946. Price, $.

There must be a large demand for these small, epitomized books. Here is one in its 9th edition. Of course, they supplement a larger text but are easier to read and serve well as refreshers.

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Diseases of the Skin

By George Clinton Andrews, M.D., Associate Clinical Professor of Dermatology, Columbia University College of Physicians. Ed. 3. W. B. Saunders Company, Philadelphia. 1946. Price, $10.

Revised and rewritten to bring the work up to date. A fine student text.

Skin Diseases:
Nutrition and Metabolism

By Erich Urbach, M.D., Associate in Dermatology, University of Pennsylvania School of Medicine, with the collaboration of Edward B. LeWinn, M.D., Associate in Medicine, Jewish Hospital, Philadelphia. Grune & Stratton, New York. 1946. Price, $10.

An encyclopedic dissertation of diseases of the skin as they affect all parts of the organism; well illustrated with more than 100 tables providing menus, diets. We question the value of the more than 1,300 references.

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A Textbook of Gynecology

By Arthur Hale Curtis, M.D., Professor and Chairman of the Department of Obstetrics and Gynecology, Northwestern University Medical School. Ed. 5. W. B. Saunders Company, Philadelphia. 1946. Price, $8.

A fine text for students; well written; complete; beautifully illustrated.

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The Early Diagnosis of Acute Abdomen

By Zachary Cope, M.D., Surgeon St. Mary's Hospital, Paddington. Ed. 9. Oxford University Press, New York. 1946. Price, $3.75.

Narcotics and Drug Addiction

By Erich Hesse, M.D., Philosophical Library, New York. 1946. Price, $3.75.

Describing the uses and abuses of all pleasure drugs and stimulants. The common components and method of manufacture and production are clearly defined as well as the various stages of drug addiction, their effects and cure. There is an extensive bibliography.

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Through the Stratosphere:
The Human Factor in Aviation

By Maxine Davis. The Macmillan Company, New York. 1946. Price, $2.75.

"A record of the evolution and use of a vast number of devices for keeping fliers healthy, happy and in the air."

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Medical Services by Government;
Local, State and Federal

By Bernhard J. Stern, Ph.D. The Commonwealth Fund, New York. 1946.

◆ ◆

The Modern Attack on Tuberculosis

By Henry D. Chadwick, M.D., and Alton S. Pope, M.D. The Commonwealth Fund, New York. 1946.

NEW WORK *JUST READY*

RENAL DISEASES

By E. T. BELL, M.D.
Professor of Pathology in the University of Minnesota, Minneapolis, Minnesota

Octavo, 434 pages, illustrated with 115 engravings and 4 color plates
Cloth, $7.00

This work has been written especially for the pathologist and the clinician. The pathologist often cannot make an accurate diagnosis unless he knows the clinical symptoms and the clinician is frequently misled if he ignores the anatomical background of the disease. This work provides this knowledge and should be particularly useful in bringing about a closer cooperation between these two groups of investigators. The book is in part a compilation of studies on renal diseases carried on by the author during the past twenty-five years. To these studies he has added a large amount of new material.

The work reveals the structural changes in the kidneys. The pathological physiology is fully presented and the clinical manifestations of each disease are discussed. Particular stress is laid on the relation of hypertension to the kidneys and there are full discussions of the toxemias of pregnancy and the renal lesions in diabetes. In the exposition of each renal disease, the author has correlated the structural changes with the clinical manifestations. The textual material is concise and the exposition is clear. The work is fully illustrated and the engravings are quite as important as the text itself.

Washington Square **LEA & FEBIGER** Philadelphia 6, Pa.